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LEADER EFFECTIVENESS: VALIDATION OF THE VROOM-YETTON NORMATIVE MODEL OF LEADERSHIP

©

BY

JOHN A. TANASICHUK

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled **Leadership Effectiveness: Validation of the Vroom-Yetton Normative Model of Leadership** submitted by **John A. Tanasichuk** in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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September 29, 1993

Dedication

To my wife, Stella, for her late nights and early mornings of untiring support, love, and encouragement helping to make the vision and dream become a reality.

To Dan for his quiet patience, understanding and computer knowledge.

To Catherine for her hope, and encouragement.

ABSTRACT

"What effect does a leader's decision-making behavior have on organizational effectiveness?" Leaders make decisions that have impact on the entire organization, its performance and its results. Consequently, the construct of leadership is important because of its critical impact on organizational effectiveness.

The purpose of the current study is to investigate decision-making aspects of leadership behavior and the extent to which the Vroom-Yetton Normative Model of Leadership (1973) contributes toward leadership effectiveness and leadership development. Thus, the relationships between leader decision-making behavior, leadership effectiveness, leader demographics and organizational variables are investigated. Leadership effectiveness outcomes are measured with the Bass and Avolio Multifactor Leadership Questionnaire (MLQ).

A total of 55 leaders and 253 followers from government and non-government organizations participated in this correlational field study. Although findings provide some empirical support for the model, practical applicability of the model is limited.

The model does describe leader behavior. However, the use of the model to prescribe appropriate decision-making behaviors cannot guarantee more effective decisions or leaders.

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TABLE OF CONTENTS

PAGE

CHAPTER I: INTRODUCTION 1

Questions 3

CHAPTER II: REVIEW OF LITERATURE 5

Definition of Leadership 5

Decision Making 6

Participative Decision Making 7

Leadership Theory Conceptual Framework 9

- Personality Traits 11
- Leader Behavior 12
- Contingency Model 14

Vroom-Yetton Normative Model of Leadership 17

- Decision Making Processes 19
- Problem Attributes 19
- Decision Rules 21
- Decision Tree/Flow Diagram 25

Vroom-Yetton Model: Typical Research Method 28

- Field and Laboratory Research 28
- Subjects typically employed. 31

The Vroom-Yetton Model: Research Findings. 32

Limitations of Research on the Vroom-Yetton Model. 38

- Self Report Effect. 38
- Parimony-Decision Processes 42
- Situational Effects 43
- Leader Knowledge and Skills. 44

PAGE

Subordinate Knowledge/Perceptions 45
Longitudinal or Single Point Studies 46
Casual Direction 47
Summary of Literature Review 48

CHAPTER III: RESEARCH PURPOSE AND STATEMENT OF THE PROBLEM 54
Question #1: Descriptive Properties 56
Question #2: Normative Properties 58
Question #3: Leader Demographics 60
Question #4: Organizational Differences 61

CHAPTER IV: METHOD 63
Subjects 63
Leaders 63
Followers 64
Instruments 64
Case Studies 66
Multifactor Leadership Questionnaire 71
Reliability 73
Validity 74
Data Collection 75
Analysis of Data 78

CHAPTER V: RESULTS AND DISCUSSIONS 79
Correlation Analysis 79

PAGE

Leader Demographic Variables 79
Vroom-Yetton Decision Making Variables 79
MLQ Leadership Effectiveness Outcomes 85
Data from Decision-Making Variables 88
Leader Demographics 91
Leadership Effectiveness Outcomes 96
Data from Leadership Effectiveness Outcomes 99
Leader Demographics and Leadership Effectiveness Outcomes 101
T-Tests: Case Studies and MLQ 104
Organizational Differences 109
Summary: Data Analysis. 113

CHAPTER VI: SUMMARY, CONCLUSIONS AND FURTHER RESEARCH 120
Question #1: Descriptive Properties 120
Question #2: Normative Properties 122
Question #3: Leader Demographics 125
Question #4: Organizational Differences 126
Limitations 126
Implications: Leadership Development 129
Practical Application 132
Future Research 133
Conclusion 135

BIBLIOGRAPHY 139

PAGE

APPENDICES:

Appendix A: Review of Vroom and Yetton (1973) Model Research 147
Appendix B: Correspondence with Dr. V.H. Vroom. 160
Appendix C: Letter of Agreement, Kepner Tregoe. 162
Appendix D: Research Process Map. 163
Appendix E: Organization Implementation Strategy. 166
Appendix F: Letter: Invitation to Participate in Research. 167
Appendix G: Leader Return Envelope. 168
Appendix H: Managing Involvement: Three Steps. 169
Appendix I: Involvement Process. 170
Appendix J: Management Case Series. 171
Appendix K: Information Letter to Leader. 173
Appendix L: Benefits Summary. 175
Appendix M: Instructions to Leaders 176
Appendix N: Informed Consent #1: Leader 177
Appendix O: Multifactor Leadership Questionnaire-Leader Form . . 179
Appendix P: Letter: Invitation to Participate 181
Appendix Q: Instructions to Followers. 182
Appendix R: Informed Consent #2: Follower. 184
Appendix S: Rater Envelope. 186
Appendix T: Return Envelope: Follower. 187
Appendix U: MLQ - Rater Form. 188
Appendix V: Leader Case Study: Response Sheet. 190
Appendix W: Leader Case Study: Computer Feedback. 191

PAGE

Appendix X: MLQ: Descriptors for High Scores on Outcomes for the Organization. 197

Appendix Y: MLQ: Organizational Norms for Organizational Outcomes 198

Appendix Z: MLQ: Leader's Profile. 199

Appendix AA: Ethics Review 202

List of Tables

TABLE PAGE

1: Vroom-Yetton Taxonomy of Decision Processes 20

2: Vroom-Yetton Model Problem Attributes 22

3: Rules Underlying the Vroom-Yetton Model 23

4: Hypotheses: Validation of the Vroom-Yetton Normative Model of Leadership 62

5: Leader Demographic Profile 65

6: Data Analysis: Correlation Tables 80

7: Correlations Between Leader Demographics 82

8: Correlations Between Vroom-Yetton Decision-Making Variables 83

9: Correlations Between Leadership Effectiveness Outcomes: Follower-Rated 86

10: Correlations Between Leadership Effectiveness Outcomes: Leader-Rated 87

11: Leader Decision-Making Behavior Profile 89

12: Frequency Preferred Decision-Making Behavior. 92

13: Frequency: Non-Selection of Decision-Making Behavior. 93

14: Use of Leader Behaviors 94

15: Correlation Between Leader Demographic Variables and Vroom-Yetton Decision-Making Variables. 95

16: Correlation Between Vroom-Yetton Decision-Making Variables and Follower-Rated Leadership Effectiveness Outcome Variables. 97

TABLE PAGE

17: Correlation Between for Vroom-Yetton Decision Making Variables and Leader-Rated Leadership Effectiveness Outcome Variables. 98

18: Leader Profile: Leader Effectiveness Outcome Variables. . . . 100

19: Correlation Between Leader Demographics and Follower-Rated Leadership Effectiveness Variables. 102

20: Correlation Between Leader Demographics and Leader-Rated Leadership Effectiveness Variables 103

21: T-Test: Self-Rated and Follower-Rated Leadership Effectiveness Outcome Variables. 105

22: T-Test: Decision-Making Variables and Leadership Effectiveness Outcome Variables. 107

23: ANOVA: Leader Demographics and Vroom-Yetton Leader Behaviors 108

24: Average Leader, Demographic Profile: Government versus Non-Government. 110

25: Mean Ratings: Decision-Making Behaviors variables for Government and Non-Government. 111

26: Mean Ratings: Leadership Effectiveness Outcome Variables for Government and Non-Government. 112

List of Figures

FIGURE

PAGE

1: Conceptual Framework. 10
2: Vroom-Yetton Decision Process Flowchart 26
3: Research Design: Variables 67
4: Research Design: Instruments 68
5: Procedure 77

CHAPTER 1: INTRODUCTION

Leadership is a construct of particular concern in the field of organizational psychology. An amorphous phenomenon, the concept of leadership has intrigued us since people began studying organizations (Wheatley, 1992). Leadership is one of the most observed, yet least understood, organizational concepts. Leadership is important because of its significant consequences on organizational effectiveness.

Decision making, as one of a leader's tasks, is an important skill or process which is integrally related to leadership effectiveness and, consequently, to organizational effectiveness. A leader, by virtue of his/her position or knowledge, makes decisions that have impact on the entire organization, its performance and its results. Effective leaders, consequently, make effective decisions. By frequently making rapid decisions, leaders run the risk of making less than ideal decisions. Accordingly, a leader's decision-making behavior will affect the behavior of organizations, simple and complex. Without leadership effectiveness, there is poor organizational performance. Furthermore, a leaders' ultimate responsibility is to be effective (Drucker, 1985).

For years a prevailing maxim of leadership has been that leadership is "getting work done through people". As Katz and Kahn (1966) pointed out, without followers there can be no leaders. Therefore, followers as well as leaders are critical components of leadership research. Because leaders typically work within organizations, a leader's effectiveness is measured in terms of his/her contribution to organizational effectiveness.

Leadership and leader decision-making behaviors are critical to organizational well being. Given that followers as well as leaders are critical components of leadership and organizational effectiveness, the question arises, "to what degree does the effectiveness of a leader's decision-making behavior affect overall organizational effectiveness?" This is an important question because leader decision-making often provides an organization with strategic direction, requires allocation of resources and is not easily reversible.

The Vroom-Yetton Normative Model of Leadership (1973) is a well researched, general, situational leadership model that accommodates decisions involving both individual and group problems. The model has the flexibility and responsiveness to be applied in a wide range of organizational contexts. While considerable research has examined the Vroom-Yetton model's ability to enhance leader decision making, little research has attempted to investigate the model's relationship to leader and organizational effectiveness.

The purpose of the current research is to investigate the decision-making aspects of leadership behavior and the relationship of the Vroom-Yetton (1973) model to organizational effectiveness. Thus, organizational effectiveness is measured in terms of the following leadership effectiveness outcome variables: 1) leader effectiveness 2) follower satisfaction, and 3) follower amount of extra effort.

If a relationship between the Vroom-Yetton (1973) model and organizational effectiveness can be established, the model may contribute to leadership development and subsequent organizational effectiveness. The current study, taking into account the leader-follower relationships, employs a research design which uses leaders and intact work groups. These leaders and work groups were selected from different administrative levels within various types of organizations. The organizational outcome effectiveness variables used in the investigation were provided by both leader self-ratings and their respective followers.

Research Questions

Leadership is often viewed as "downward influence", that is, leader influences followers to improve individual and organizational performance and to create a common sense of purpose (Bass, 1981). Much of the literature on leadership addresses the normative issue of effective leader behavior. The current investigation examines the behavior of leaders in complex organizations and specifically attempts to answer the following descriptive and normative questions: 1) "How do leaders behave?" 2) "Does leader behavior affect organizational effectiveness?" 3) "Do demographic variables influence leader behavior and effectiveness?" 4) "Does organizational variation influence leader behavior and effectiveness?"

A great deal of leadership effectiveness research has focused on individual leaders. The focus of the current investigation is on individual leaders and the effect their behavior has on individual followers and intact work teams. This study also measures the perceived effect the leader has on organizational effectiveness. Most importantly, the current investigation examines the relationship between a leader's conformity to the Vroom-Yetton normative model of leadership and subsequent effects on individual, group and organizational effectiveness. By way of placing the current investigation in a larger research context, a thorough review of Vroom-Yetton research is necessary and is provided in the following chapter.

The third chapter outlines the purpose of the current investigation and the research questions. In the fourth chapter, descriptions of the subjects, instruments, data collection and analysis are provided. The fifth chapter presents and discusses the data analysis. In the final chapter, Vroom-Yetton model limitations, leadership development implications, future research possibilities and concluding comments are presented.

CHAPTER II: REVIEW OF THE LITERATURE

Defining Leadership

Leadership and leadership issues lend themselves to the practical application of psychological theory. Leadership, as a concept, is often used as a general description of what leaders do (Duke, 1989). Leaders usually occupy positions of leadership and are generally assumed to have some influence over the effectiveness of the position they occupy and the role they play. Katz and Kahn (1966) assert that leadership is a relational concept implying two terms: the influencing agent and the person influenced. Yukl (1989) broadly defines leadership as an interactive process of influence which involves the determination of group or organizational objectives and motivates task behavior in pursuit of a desired end state. Leadership, as such, is then conceptualized as a social influence process of interpersonal behaviors between the one who leads and the one who follows.

Leadership is a renewable resource that organizations can take advantage of in increasingly more competitive times. It is widely assumed that leaders have the responsibility to exercise leadership in their organizations and that their ability to fulfill this role will have important consequences for the effectiveness of the organization. Organizations that consider leadership development a priority and maintain the necessary infrastructure will have a long-term competitive advantage (Deluga, 1988). Any knowledge that the psychological and behavioral sciences could contribute to leadership development would be of immense value.

Decision Making

Decision making is arguably one of the most crucial aspects of leadership. Leaders, by virtue of their role, must continually make decisions and their ability to make successful ones is widely believed to be an important contribution to their organization's effectiveness. Drummond (1992) cites studies suggesting that leaders spend at least fifty percent of their time dealing with the consequences of bad decision-making, time which should be devoted to innovation, planning and other leadership functions. Enabling leaders to be better decision makers has considerable potential for improving organizational effectiveness (Tjosvold, Wedley & Field, 1986).

Since one cannot effectively examine all aspects of leader behavior simultaneously, Vroom and Yetton (1973), selected the leader's role in the decision-making process because decision-making is central to many scientific disciplines.

> "Much of human behavior is simply a reflection of the decisions people make, and the processes that regulate and control these choices or decision are central to any discipline that purports to understand and predict human behavior" (Vroom & Yetton,1973, p. 4)."

> "An understanding of the decision-making process is critical not only for the explanation of individual behavior but also for the behavior of complex organizations" (Vroom & Yetton, 1973, p. 4).

It can be argued, however, that the processes of problem solving and decision making when carried out by organizations are different from the same processes carried out by individuals in at least one fundamental respect. Decision making within organizations involves both cognitive and social processes; and it is the interpersonal or social aspects of decision-making that are of most direct relevance to processes of leadership. This relationship between leadership and decision-making became the focal point of Vroom-Yetton research. Primarily, Vroom and Yetton were interested in the way which leadership is reflected in social processes utilized for decision-making. Specifically, they focused on leaders' choices about how much and in which way to involve followers in decision-making; i.e. the degree to which he/she encouraged the participation of his/her followers in solving problems or making decisions. Throughout this study, the terms "followers" and "subordinates" will be used synonymously.

In decision making, the leaders' task is one of determining the mechanism or process by which a problem is to be solved. A major aspect of a leader's job also is to determine what person or persons should take part in the solution of the problem. There are numerous decision-making processes to choose from. The alternatives vary not only in terms of cognitive but also social processes - specifically, the amount and form of opportunity afforded subordinates to participate in the decision.

Participative Decision-Making

Many social psychologists and other behavioral scientists who have turned their attention towards the implications of psychological and social processes for the practice of leadership have called for greater participation by followers in the problem solving and decision-making processes.

Vroom and Yetton (1973) addressed themselves to the normative question of what is effective leader behavior. This led Vroom and Yetton to have an interest in the psychological and social process implications resulting from the practice of leadership calling for greater participation by followers in the decision-making process. They argue for greater influence in decision-making on the part of those who are held responsible for decision execution. The research results about leadership and participative decision making have been inconsistent. This inconsistency in the research is usually attributed to the complexity of interactions between the leader, followers and situational factors involved as well as the inability to differentiate the variables entailing participation. Nonetheless, the issue in the study of leadership concerning the degree and consequences of participative decision-making processes is still important (Leana, 1986). Vroom and Yetton felt it was important to develop guidelines around the circumstances under which participation in decision making may contribute or hinder organizational effectiveness. Vroom and Yetton sought to develop a normative model identifying the situational conditions which determine the efficacy of participative management. Their intent was to incorporate situational variables into the decision-making process and show which decision behavior should be used in different situations.

Central to the Vroom and Yetton (1973) research is the role of situational differences as determinants of the choice of a decision behavior. This emphasis is a departure from the mainstream, which has focused on individual differences as determinants of actual behavior and has advocated a highly participative decision style as optional for all situations. The Vroom-Yetton model identifies the situational conditions which determine the efficacy of participative management and evaluates the alternative consequence of various decision processes.

Leadership Theory: A Conceptual Framework

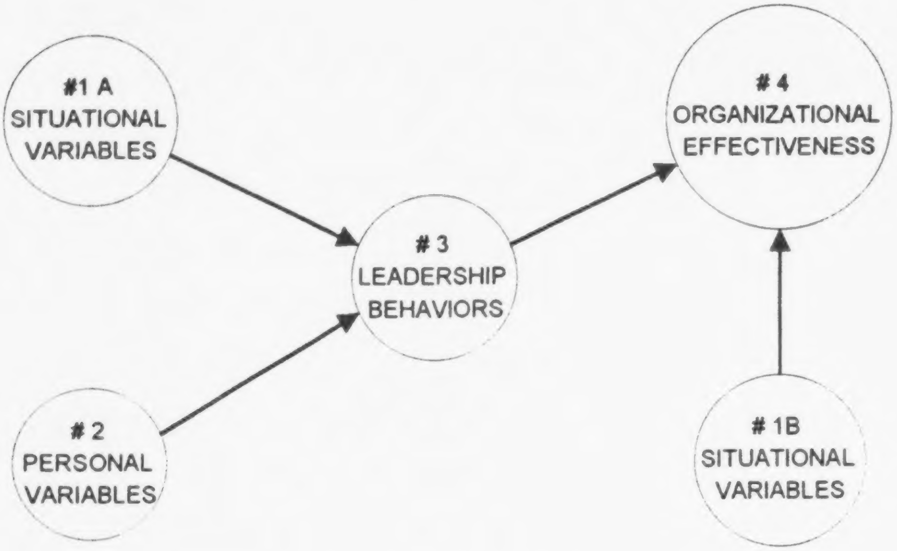
The leadership conceptual framework influencing the Vroom and Yetton research is depicted in Figure 1 and presents the principal classes of variables relevant to the analysis of the leadership process.

The key variable in the Figure is labeled #3, Leader Behavior -- the action or behavior exhibited by the leader in the course of carrying out his/her leadership role. The decision process used by the leader is one, and only one, of the variables that might be used in the analysis of such behavior. Traditionally, industrial/organizational psychological research has focused on leader behavior as the *dependent variable* and situational and individual difference as the *independent variables.* As illustrated in Figure 1, there is a strong *a priori* basis for believing that the way a leader behaves (#3) is a function of the situation with which he/she is confronted (#1A) and of relatively stable properties of the person including personal values, attitudes, and beliefs (#2). This is consistent with Lewin's (1951) view that behavior is a function of the interaction between a person and the environment.

In contrast to focusing on situational and personal variables, Vroom and Yetton (1973) focus on organizational and situational variables in understanding the conditions under which leaders should encourage the participation of followers in decision-making. With reference to Figure 1, leader behavior (#3) becomes the independent variable and organizational effectiveness (#4) becomes the dependent variable. Relevant processes are organizational as well as psychological. The concern here is with understanding the consequences of the leader's behavior for the effectiveness of the system in attaining its external objectives. Organizational effectiveness (#4), as illustrated in Figure 1,

Figure 1

A Conceptual Framework of Leadership


#1 A
SITUATIONAL
VARIABLES
# 2
PERSONAL
VARIABLES
# 3
LEADERSHIP
BEHAVIORS
# 4
ORGANIZATIONAL
EFFECTIVENESS
# 1B
SITUATIONAL
VARIABLES

is a function not only of the leader's behavior (#3) but also of situational variables (#1B). The effects (of #1B on #4) are either the direct result of situational properties on organizational effectiveness or an interaction of situational variable with leader behavior. While the effectiveness of an organization is not solely dependent on the behavior of the leader, Vroom and Yetton emphasize that the leader's behavior must be adapted to situational demands. Their normative-model is built on the interaction between leader behavior (#3), in terms of decision processes, employed by the leader, and situational variables (#1B), expressed as problem attributes. Vroom and Yetton, in formulating the model, replace the global concept of organizational effectiveness with a more specific concept of decision effectiveness. The following literature review will consider historical and current approaches showing both similarities and differences from Vroom and Yetton.

Personality Traits

Three major conceptual trends in leadership analysis have been identified (Heller, 1971). The first characterizes leadership as a personality trait in terms of ability, behavior, perceptions and attitudes. The assumption of this approach is that individuals have varying quantities of traits which differentiate them from others. It is assumed that differences in leadership ability are not only potentially measurable but also determine the effectiveness of the leader. Trait theories of leadership look for correlations between traits and particular measures of leadership performance to differentiate between the personal characteristics of leaders and non-leaders and between effective and ineffective leaders. This creates a technology by which the relative amounts of leadership possessed by different people could be measured, and individuals with the largest amount of the trait are selected as leader (Vroom & Yetton, 1973).

The concept of leadership as a personality trait assumes that organizational effectiveness is affected in a direct manner by a leader's behavior which is determined solely by his/her personality traits. This approach has been criticized as an oversimplification of the process of leadership (Stogdill, 1948). It is generally assumed that trait studies fail to identify core leadership traits, although the notion of "trait" has broadened to include knowledge, abilities, dispositions, and value commitments (Coombs, 1988). The personality conceptualization of leadership, however, overlooks the possibility that organizational effectiveness might also be influenced by situational factors and that individual differences in leadership must be evaluated in relation to the situation (Vroom & Yetton, 1973).

Leader Behavior

The second major conceptual trend in analyzing leadership focuses on the behavioral correlates of effective leadership, specifically, the pattern of a leader's interaction with subordinates. The primary emphasis here is on behavioral dimensions and characteristic behavior-patterns of leaders in the workplace. Stable relationships between leaders' behavior and criteria concerning their effectiveness are not obviously significant for leader selection, but such relationships could have importance for leader development and training. Knowledge of the behavior patterns that characterize effective leaders provides a rational basis for the design of programs to instill these behavioral patterns in actual or potential leaders (Vroom & Yetton, 1973).

Coombs (1988) describes two major research studies, conducted in the mid 1940's at Ohio State University and the University of Michigan that attempted to develop behavioral dimensions of leadership. These studies assumed that different leadership characteristics would result in varying levels of effectiveness in terms of employee satisfaction and performance. This marked the beginning of concern with "organizational" leadership, in which leadership was measured, at least in part, by subordinate performance and attainment of organizational goals.

McGregor's Theory Y, Likert's System 4, Ouchi's Theory Z, and Blake and Mouton's 9-9 Leadership Style are all theories of leadership style which reflect a conceptual focus on leader interaction and behavior. All share a view that there is one best approach to managing - usually involving decision making by consensus and delegation - that is universal in its application. Likert's (1961, 1967) findings are representative of this behavioral approach. He reported substantial evidence supporting three conclusions with respect to effective leaders. First, effective leaders tend to have relationships with their followers that are supportive and that enhance the latter's sense of personal worth and importance. Second, effective leaders use group rather than person-to-person methods of supervision and decision-making. Third, effective leaders tend to set high performance goals. Referred to as Likert's leadership principles, these three conclusions regarding effective leaders are not concrete leader behaviors; they are a general blueprint for action rather than a detailed blueprint, which would of necessity have to take situational factors into account.

The search for "effective" leader behaviors assumes that organizational effectiveness is a simple function of leader behavior.

This represents a significant advance over the personality trait approach in as much as it considered the actions of the leaders rather than their personal traits as influencing the effectiveness of organizations. However, such an approach still fails to address the possibility that organizational effectiveness is a product of the joint effects of both leader behavior and situational variables including interactions between leader behavior and the leadership situation.

Efforts to determine the "best" type of effective leader in all situations has produced diverse and inconsistent results. Inconsistency of this type tends to suggest that an effective pattern of leader behavior in one situation may not be effective in another situation. This leadership-in- context paradigm led to the development of contingency theory, which focuses on discovering the situational variables which interact with leader behavior to result in leadership effectiveness.

Contingency Theory

The third and most recent conceptual trend, categorized as situational theory and characterized as contingency models (Heller, 1971), postulates that leadership exists in the context of an organizational environment. From such a perspective, analysis of situational demands is prerequisite to understanding the process of leadership. The nature of the group, its prevalent norms and values and the critical issues are recognized as implicated in the leadership process. This, in turn, influences the type of leadership appropriate for the situation.

Tannenbaum and Schmidt (1958) provided one of the first theoretical orientations of situational contingency models by presenting an interactive model of leadership. The supervisor, the followers and the situation are three interactional forces which determine the leaders behavior in differing situations.

Stogdill (1974) posited that leadership cannot be explained simply in terms of individual or environment characteristics but, rather, as an interaction between the characteristics of the individual and the demands of the situation. Vroom (1976) presented a novel focus when defining leadership as a role to be performed within certain established boundaries of a situation and not a general trait or a fixed behavior pattern.

Fiedler's Contingency Model (1967), Hersey and Blanchard's Situational Model (1982) House's Path-Goal Theory (1971) and Maier's Leadership Continuum (1963) are all contingency models that address situational variability and, thus, to some extent, are similar to the Vroom-Yetton (1973) model. Each of these contingency models propose theories of leadership that attempt to be specific about the way in which leadership styles should be related to situational requirements. Each of these models attempt to characterize aspects of the leadership context which make a difference in the relationship between leader traits, behaviors, or styles and organizational effectiveness. However, there is no agreement regarding which variables are the critical ones.

Fiedler's Contingency Model of Leadership (1967) is an attempt to explain the relationship between supervisory behavior and effectiveness. Fiedler postulates that leadership effectiveness and the performance of groups are contingent upon both the leadership style of the leader and the degree to which the leader has control and influence in a particular situation. The personality of the leader and the leader's situational control are key variables. Whether or not a situation is conducive to control is determined by three criteria: leader-follower relations, task structure and leader position power. Fiedler maintains that leadership style is a relatively stable and enduring personality characteristic and, therefore, advocates that organizations should fit the job to the person by restructuring the task, adjusting the authority vested in a position, or changing the composition of the subordinate group to alter leader-member relations.

Hersey and Blanchard (1976) developed a contingency theory based upon the Michigan and Ohio State 1940's investigations of leader behavior. The situational variable in their leadership theory is the maturity level of subordinates, defined in terms of their readiness to tackle the task facing the group. The Hersey-Blanchard theory substitutes this subordinate maturity dimension for Fiedler's (1967) three components of situation favorableness.

House's (1971) "path-goal" theory of leadership postulates that a leader's most important role is that of motivating followers. This is accomplished by clarifying paths to desired goals and by providing subordinates with rewards to supplement those found in the environment (House & Dessler, 1974). House's path-goal theory is based on Vroom's, (1974) expectancy theory which suggests that performance is a function of the worker's perception that effort will lead to performance and that performance will lead to valued outcomes and rewards.

Maier (1963) viewed leadership style as a continuum ranging from no sharing of power (automatic or unilateral decisions) by the leader, to complete power sharing (participative or group decision making). Maier proposed that leaders should vary their style according to the type of problem presented. Accordingly, Maier suggested the important situational variables concerning participative decision making could be classified as decision quality requirements and follower acceptance requirements. Decision quality depends on objective aspects of the decision whereas decision acceptance depends on subjective aspects of the decision. Based on Maier's classification, Vroom and Yetton (1973) developed a normative model of leadership decision making which focuses on the nature of decisions and attempts to designate conditions under which participation will be most successful.

Vroom-Yetton Normative Model of Leadership

The principal application of the Vroom-Yetton (1973) model is leadership development through the designing of leadership programs which encourage leaders to critically examine their leadership methods in order to better fit their decision-making "style" to the situational demands of the problem at hand. As Field (1979) concludes:

> The Vroom-Yetton contingency model of leadership behavior is of importance to leaders because it was developed as a model of how leaders should make decisions. If valid, the model could then be used as a tool to aid in the selection of appropriate decision making processes for different situations, resulting in increased decision and organizational effectiveness (p. 249).

The Vroom-Yetton (1973) model focuses on the delegation of authority and the social processes utilized in decision making. Specifically, the model focuses on the leader's determination of the amount of and the manner in which followers should be involved in the decision-making process. From a contingency theory perspective, the problems or decisions faced by a leader are the situational variables.

Each problem or decision is thought to represent a distinct combination of characteristics that influence the leader's choice of leadership style. This coincides with Maier's (1963) view that leaders should vary their style according to the type of problem presented. The Vroom-Yetton model is normative in as much as it provides a framework of effective leader decision making. It is a normative model because it shows which decision-making behavior should be used in different situations. According to Vroom and Yetton, leadership is a role performed within certain boundaries which serves to control the decision-making process. The Vroom-Yetton model outlines on the amount and form of participation in decision making. It does not profess to address the totality of leadership behavior and function. Instead, it concentrates only on those aspects of power sharing in the decision-making process.

Basic Assumptions

Five basic assumptions guided the development of the normative model and the situational attributes that are inherent within it.

1. The normative model should be constructed in such a way as to be of potential value to leaders in determining which leadership methods they should use in each of the various situations that they encounter in carrying out their formal leadership roles. Consequently, it should be operational in that the behaviors required of the leader should be specified unambiguously.

2. There are a number of discreet social processes by which organizational problems can be translated into solutions, and these processes vary in terms of the potential amount of participation by followers in the problem-solving process.

3. No one leadership method is applicable to all situations; the

function of a normative model should be to provide a framework for the analysis of situational requirements that can be translated into prescriptions of leadership styles.

4. The most appropriate unit for the analysis of the situation is the particular problem to be solved and the context in which the problem occurs.

5. The leadership method used in response to one situation should not constrain the method or behavior used in other situations.

Decision-Making Processes

Vroom and Yetton (1973) developed a taxonomy of decision-making processes that have different consequences for solutions and outcomes for the organization and that are descriptive of the usual methods of leadership used in dealing with individuals and groups. Each process is not elaborate thus leaders are able to determine which method they are using in any given instance. As detailed in Table 1, there are five alternative decision behaviors potentially applicable to organizational problems. Each process is represented by a symbol which will be used throughout this study as a convenient method of referring to each process. As one moves down the taxonomy, there is a progressive increase in the degree of participation or power sharing opportunities provided to the followers in decision making. GII (resolve as group), with an emphasis on consensus among followers, is most participative; A1 (resolve alone) is least participative (Vroom & Jago, 1988).

Problem Attributes

In applying this model to decision making, the leader evaluates the status of the immediate decision according to a set of seven problem

Table 1

Vroom-Yetton Taxonomy of Decision Processes

A1	You solve the problem or make the decision yourself, using information available to you at the time.
AII	You obtain the necessary information from your subordinates, then decide upon the solution to the problem yourself. You may or may not tell your subordinates what the problem is in getting the information from them. The role played by your subordinates in making the decision is clearly one of providing specific information which you request, rather than generating or evaluating alternative solutions.
C1	You share the problem with the relevant subordinates individually getting their ideas and suggestions without bringing them together as a group. Then you make the decision, which may or may not reflect your subordinates' influence.
CII	You share the problem with your subordinates as a group obtaining their collective ideas and suggestions. Then you make the decision, which may or may not reflect your subordinates' influence.
GII	You share the problem with your subordinates as a group; together generating and evaluating alternatives and attempting to reach agreement (consensus) as to a solution. Your role is much like that of chairman. You do not try to influence the group to adopt "your" solution, but rather you are willing to accept and implement any solution which has the support of the entire group.

Note:

A = Autocratic
C = Consultative
G = Group

attributes. The problem attributes distinguish three types of outcomes that influence the ultimate effectiveness of decisions. These relate to l) the quality or rationality of the decision, 2) the acceptance of the decision by followers and their commitment to execute it effectively, and 3) the amount of time required to make the decision. These problem attributes (Table 2) are the basic elements of the model and represent the unique properties of the situation or problem at hand. The problem attributes are used by a leader in diagnosing a particular problem before choosing a leadership behavior and require the leader to make assumptions about the possible individuals involved in the decision-making process and refers to them as follower. The term follower does not necessarily mean that members of the decision-making group are only those defined by the organization as reporting to the leader.

Decision Rules

The normative model specifies a set of rules that should be used in determining the form and the amount of participation in decision making by followers in different types of situations. Each of the seven problem attributes is represented by a question requiring a yes-no response. These attributes enable a leader to diagnose the situation by answering this set of seven questions. There are also seven rules. The first three rules are intended to protect decision quality and the four remaining rules are intended to protect decision acceptance (Table 3). Each rule utilizes two or more problem attributes as indicative of the need to eliminate decision processes from a set of feasible alternative decision processes under certain specifiable conditions because they pose a risk to either decision quality or decision acceptance.

Table 2

Vroom-Yetton Model Problem Attributes

A. The importance of quality of the decision.

B. The extent to which the leader possesses sufficient information/expertise to make a high-quality decision by him/herself.

C. The extent to which the problem is structured.

D. The extent to which acceptance or commitment on the part of subordinates is critical to the effective implementation of the decision.

E. The prior probability that the leader's autocratic decision will receive acceptance by subordinates.

F. The extent to which subordinates are motivated to attain organizational goals as represented in the objectives explicit in the statement of the problem.

G. The extent to which subordinates are likely to be in conflict over preferred solutions.

Table 3

Rules Underlying the Vroom-Yetton Model

(Rules to Protect the Quality of the Decision)

1. The Leader Information Rule. If the quality of the decision is important and the leader does not possess enough information to solve the problem by him/herself, the AI is eliminated from the feasible set of alternative decision processes.

2. The Goal Congruence Rule. If the quality of the decision is important and subordinates are not likely to pursue the organizational goals in their efforts to solve the problem, then GII is eliminated from the feasible set of alternative decision processes.

3. The Unstructured Problem Rule. If the quality of the decision is important, the leader lacks the necessary information to solve the problem by him/herself, and the problem is unstructured, solutions providing for interaction among subordinates likely to possess relevant information should be used. Therefore, AI, AII, and CI are eliminated from the feasible set of alternative decision processes.

(Rules to Protect the Acceptance of the Decision)

4. The Acceptance Rule. If the acceptance of the decision by subordinates is critical to effective implementation and if it is not certain that an autocratic decision will be accepted. AI and AII are eliminated from the feasible set of alternative processes.

Table 3 - continued

5. The Conflict Rule. If the acceptance of the decision is critical, an autocratic decision is not certain to be accepted and disagreement among subordinates in methods of attaining the organizational goal are likely, the style used in solving the problem should enable those in disagreement to resolve their differences with full knowledge of the problem. Accordingly, AI, AII, and CI are eliminated from the feasible set of alternative processes.

6. The Fairness Rule. If the quality of the decision is unimportant, but acceptance of the decision is critical and not certain to result from an autocratic decision, the decision process used should permit the subordinates to interact with one another and negotiate a fair method of resolving any differences with full responsibility on them for determining what is fair and equitable. Under these circumstances, AI and AII, CI, and CII are eliminated from the feasible set of alternative processes.

7. The Acceptance Priority Rule. If decision acceptance is critical and not certain to result from an autocratic decision but subordinates are motivated to pursue the organizational goals represented in the problem, then methods which provide equal partnership in the decision-making process can provide greater acceptance without risking decision quality. AI, AII, C1, and CII are therefore eliminated from the feasible set of alternative decision processes.

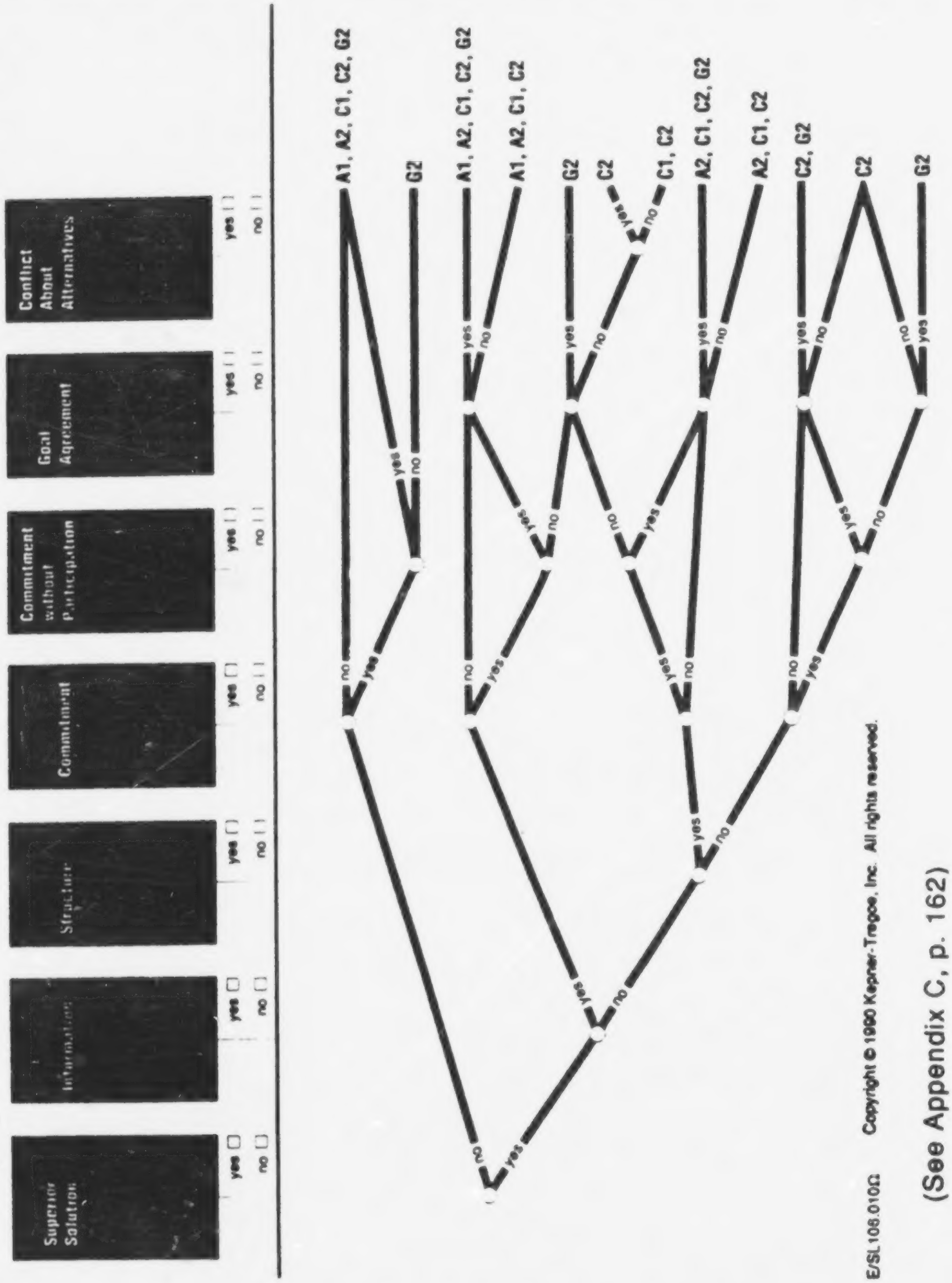
A Decision Flow Chart

A decision tree, or flow chart, applying the seven rules through a series of questions requiring "Yes-No" responses is required to use the model (Figure 2). Beginning at the left-hand side, one proceeds to the right answering the questions indicated at each point. The process continues until a terminal node is reached designating a problem type and a set of feasible alternative decision-processes to select from. A feasible set is defined as the methods that remain after all those which violate rules designated to protect the quality and acceptance of the decisions have been excluded (Vroom & Yetton, 1973). For a few problem types, there is only one decision behavior in the feasible set. For the majority of problem types, however, there are two or more feasible alternatives. Others have all five methods still feasible to select from.

The Vroom-Yetton (1973) model uses only two outcome criteria -- decision quality and decision acceptance. When more than one decision-making behavior is given in the feasible set, the leader may use any of them and still protect the quality and acceptance of the decision. Any choice from the feasible set is dependent upon the external consequences of the alternatives. When there is more than one behavior in the feasible set, there are a number of alternative decision rules which dictate the choice among them. The model expresses follower development and decision time as explicit criteria for determining optimal decision procedures. Vroom and Yetton (1973) approach this issue by proposing two alternate models of choosing an optimum decision behavior within the prescribed feasible set, each based on a different consequence of participation.

Figure 2

Vroom-Yetton Decision Process Flowchart


Superior Solution
yes ☐
no ☐
Information
yes ☐
no ☐
Structure
yes ☐
no ☐
Commitment
yes ☐
no ☐
Commitment without Participation
yes ☐
no ☐
Goal Agreement
yes ☐
no ☐
Conflict About Alternatives
yes ☐
no ☐
yes
no
A1, A2, C1, C2, G2
G2
A1, A2, C1, C2, G2
A1, A2, C1, C2
G2
C2
C1, C2
A2, C1, C2, G2
A2, C1, C2
C2, G2
C2
G2

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(See Appendix C, p. 162)

The first model of choosing an optimal decision process is referred to as Model A. Model A is a short-term time efficient method which seeks to expend the lowest number of personhours in the decision-making process. This model selects the "least participative" alternative within the feasible set based on the premise that participative processes require more time than those that are non participative. Model A, the short-term time efficient model, places maximum weight on personhours and no weight on development and, thus, chooses the method furthest to the left of the feasible set. This model focuses on the effectiveness of the immediate decision and expends the least amount of time to achieve that objective.

In contrast, Model B, the long-term time investment model, places less weight on personhours and selects the most participative alternative (method furthest to the right) within the feasible set. Model B is based on the assumption that a higher degree of participation has developmental benefits and will maximize aggregate performance over a longer period. Given this long-term orientation, there is a trade off between personhours and team development, both of which increase with participation. Model B assumes that the use of more participation methods will, in time, result in a more effective problem-solving team by increasing subordinate's knowledge of and identification with organizational goals. Both models, however, promote organizational effectiveness within the context of either time efficient (Model A) or time investment (Model B) criteria.

The Vroom-Yetton (1973) model is substantiated by research findings which have addressed the consequences of employee involvement in decision making. To be considered valid, the model must demonstrate that its specific contingencies can account for the relative success of different decisions and, by extension, the relative success of different leaders (Vroom & Jago, 1988). The following section reviews typical research methodologies, findings and limitations with respect to validation and implementation of the Vroom-Yetton Model.

The Vroom-Yetton Model: Typical Research Methodologies

Field and Laboratory Research

Following the development of the Vroom-Yetton (1973) model, a number of descriptive and normative studies using various types of subjects, instruments and measures have been conducted examining both predictors and outcomes of decision-making styles. In general, this research has employed variations on three types of research design: field, laboratory, and combination field/laboratory. The field design involves descriptions of decisions and their degree of participative decision making as recalled by leaders from actual organization experiences. This retrospective methodology is classified as field research since data are collected from actual work settings and are provided by practicing decision makers (Schweiger & Leana, 1986).

The most common field procedures have been to ask leaders to describe examples of successful and unsuccessful decisions. (Jago & Vroom, 1978, 1980; Tjosvold, Wedley & Field, 1986; Vroom & Jago, 1978; Vroom & Yetton, 1973; Zimmer, 1978). These decisions are then analyzed to determine what situation attributes they represent. The decision procedure used by the leader is compared to the feasible set recommended by the model. Most of these field studies validate the model by comparing the effects of model-based decisions with the effects of decisions which were inconsistent with the model.

Erffmeyer (1983) and Louden (1980) employed an alternative to the retrospective recall field method. Specifically, their investigations simultaneously incorporated two important features: 1) naturally occurring decision situations that currently confronted the leaders (as compared to recalled decisions) and, 2) objective, independent measures of the problem attributes, the decision method used, and the effectiveness, quality and acceptance of the decision after an elapsed period of time.

A frequently used laboratory methodology required leaders to respond to decision scenarios which contain different combinations of situational problem attributes. For each decision scenario, respondents indicate the decision process they would use in the prescribed situation. This artificial construction of the decision environment differs from the retrospective recalled problem methodology where respondents recall the decision environments. The retrospective field methodology is constructed and reported by the participating leader about his/her work setting while the scenario laboratory methodology is constructed entirely by the researcher (Schweiger & Leana, 1986).

Hill and Schmitt (1977) offered an alternative to the standardized case scenario method. Hypothetical management problems were constructed by forming all possible combinations of the situation attributes defined in the Vroom-Yetton (1973) model of leadership. Each problem was presented in the form of a table containing the situation attribute questions. The respondent indicated whether the situation attribute was present or absent.

Field (1982) and Liddell, Elsea, Parkinson and Hackett (1986) conducted studies with students where leader behavior was manipulated by specifying the decision procedure to be used in a given situation, and varying the procedures and situations (cited in Vroom & Jago, 1988, p. 79-83). The Field (1982) study manipulated decision process and situation attributes by having students form decision-making groups. Each group had a leader, two followers and an observer who worked jointly on five problems using the decision processes of the Vroom-Yetton (1973) model. The decision style was not one of self-report but an actual observed process. Decision effectiveness was determined from the solution recorded by the leader for each problem and follower acceptance of the decision.

Several researchers used both the recall and the scenario method to assess the leadership style of their subjects in terms of the model (Vroom & Yetton,1973; Jago & Vroom, 1978; Schweiger and Jago 1982). Margerison and Glube (1979), and Paul and Ebadi (1989) used a combination of laboratory and field research environments; both used the scenario method to determine managers' mean level of participation, but assessed dependent measures of performance and subordinate satisfaction from actual work settings with retail department store and dry cleaning franchise leaders.

Schweiger and Leana (1986), using a qualitative judgmental approach, summarized research on the Vroom and Yetton model using two broad sets of dependent variables: 1) the degree of agreement in predicting the use of decision making processes and 2) the degree of effectiveness associated with agreement with the normative aspects of the model. Their results suggested that the laboratory results were similar and in general in agreement with those obtained in the field.

Some research inconsistencies, however, prompted Schweiger and Leana to suggest that it may be premature to conclude that laboratory and field methodologies are relatively interchangeable.

Subjects Typically Employed

Typically, the subjects used in research concerning Vroom-Yetton leadership style have been business leaders participating in professional development education programs (Bottger, Hallein & Yetton, 1985; Crouch & Yetton, 1987; Erffmeyer, 1983; Field & House, 1990; Hill & Schmitt, 1977; Jago, 1978, 1981; Jago & Vroom, 1975, 1977, 1978, 1980; Leana, 1987; Steers, 1977; Tjosvold, Wedley & Field, 1986; Vroom & Jago, 1974; Vroom & Jago, 1978; Vroom & Yetton, 1973; Zimmer, 1978). Specific organizational leaders have included school principals (Louden, 1980) community college, four-year college and university division chairpersons (Taylor, 1982) nursing, university administrators and fraternity/sorority presidents (Erffmeyer, 1983); district managers (Zimmer, 1978); insurance claims supervisors (Leana, 1987); department store managers (Paul & Ebedi, 1989); dry cleaning franchise managers (Margerison & Glube, 1979); managers in manufacturing companies (Hill, 1977) and profit and non-profit managers, (Clement, 1983). Research was conducted primarily in Canada and the United States although the studies by Crouch & Yetton (1987) and Bottger, Hallein & Yetton (1985) were conducted in Australia.

Many studies included feedback from subordinates (Bohnesch et al., 1987; Crouch & Yetton, 1987; Erffmeyer, 1983; Field & House, 1990; Hill, 1977; Jago & Vroom, 1975; Jago & Vroom, 1977; Leana, 1987; Louden, 1980; Margerison & Glube, 1979; Paul & Ebadi, 1989). Other studies utilize students (Ettling & Jago, 1988; Field, 1982; Jago & Ettling, 1982;

Liddell et al. 1986; Schweiger & Jago, 1982; and Vroom & Yetton, 1973). Heilman, Hornstein, Cage and Herschlag (1984) used consenting volunteers from the general public. In some instances, subjects were formed randomly into problem decision-making groups (Bohnesh et al. 1987; Ettling & Jago, 1988; Field, 1981; Field, 1982; Jago & Ettling, 1982).

The Vroom-Yetton Model: Research Findings

Vroom and Jago (1988) computed the mean predictive success rate for six studies and found that for decisions made in accordance with the model, the mean success rate was 62%, versus 37% for decisions made using a decision procedure outside of the feasible set. Recent research findings (Paul & Ebadi, 1989) suggest that the degree of follower participation in organizational decision making varies with the particular problem or situation facing the decision maker. Margerison and Glube (1979) suggest that there are a number of variables, including the leader's choice of decision making methods, that affect worker job satisfaction and firm productivity. Crouch and Yetton (1987) hypothesize that performance is a joint function of leadership style and behavior where behavior is defined as one's level of conflict management skills. Greater skill in conflict management is thought to result in greater subordinate performance. Managers with poor conflict management skills incur performance losses if they attempt group discussion under conditions of conflict.

Yetton (1972) found that differences in the situation accounted for 28.3% of manager's variance in behavior across cases, while effects due to the individual differences account for 9.7% of the variance. Similarly, Vroom and Yetton (1973) found that over a number of data sets, the situation accounted for 29.9% of the variance and individual differences accounted for 8.5% of the variance, while Vroom and Jago (1974) reported percentages of 35% and 12% respectively.

Similar results have been reported by Hill and Schmitt (1977), who found that situations accounted for 37% of the variance while individuals accounted for 8%. Steers (1977) found that for males, 19% and 6% of the variance was accounted for by the situation and individual differences respectively, while for females the percentages were 31% and 7%.

Clements (1983) found that profit and non-profit managers generally did not respond to the survey differently on the dependent measures. The combined managers' responses did replicate previous research with situational main effects accounting for 41% of the variance in decision styles and individual differences accounting for 11%.

Taken together, these results yield considerable evidence to support the descriptive properties of the model. In particular, it appears that leaders vary their decision style using a criterion set that is keyed to situational characteristics. Further, it appears that this process is approximated by the model's rules and problem attributes.

The validity of the normative model rests largely on the validity of the rules that define the feasible set. The decision rules define the problem attributes by selection of the appropriate decision processes by eliminating alternatives from consideration because of the risk they pose to either decision quality or decision acceptance. Vroom-Yetton (1973) found that when a manager was asked to recall a recently solved problem, 85% of these problems had a quality requirement and 90% had an acceptance requirement.

An early study on the validity of the rules underlying the Vroom-

Yetton model examined the contribution of each rule individually (as opposed to type of rule; i.e. quality or acceptance) to model validity (Vroom & Jago, 1978). Support for the individual validity of each rule was found for five of the seven rules. The two exceptions were goal congruence (quality) and conflict (acceptance).

Field's (1982) study of the Vroom-Yetton model manipulated decision processes and situation attributes and found evidence for: the normative model taken as a whole, for one of the three quality rules, and for three of the four acceptance rules. The decision quality and acceptance attributes were higher when the rules were not violated than when they were. While the goal congruence rule was insignificant, the results were in direct opposition to that hypothesized; mean decision effectiveness was actually higher when the rule was violated than when it was not. Field concluded that the goal congruence rule had a negative effect on model validity.

Ettling and Jago (1978) found support for the conflict rule, however. Their results suggest that subordinates are more likely to accept a leader's decision following an interactive group process, regardless of either the leader's desire to reach consensus or the technical quality of the decision. The data show that group discussion provides a forum for the constructive resolution of disagreement.

Clements (1983) tested six of the rules underlying the Vroom-Yetton model using standardized cases to overcome weaknesses inherent in the recalled problem methodology. Results were inconclusive. Only the acceptance priority rule was found to contribute significantly to model validity. The goal congruence rule (trust) significantly detracted from model validity. This confirmed Field's (1982) results, that is, while the remaining four rules did not show significant differences, the means obtained were in the predicted direction. This may result from the use of standardized cases where predicted decision style does not receive feedback as would be the case with previously recalled work situations (Clements, 1983).

Erffmeyer (1983) indicated that the Vroom-Yetton (1973) model was supported by significant main effects for feasibility on both the measures of decision quality and the measures of decision acceptance. That is, decisions made by methods contained in the feasible set were perceived by managers and their subordinates to be of higher quality and to be of better acceptance than decisions outside the feasible set. This finding closely parallels those of Vroom and Jago (1978). They found that managerial decisions following the Vroom-Yetton model received significantly higher ratings for decision effectiveness, quality and acceptance. The rate at which the managers' decisions fell within the feasible set, 63%, is consistent with results from previous studies; e.g. rates of 68% (Vroom & Yetton, 1973), 65% (Vroom & Jago, 1978), 70% (Wedley & Field, 1982), 78% (Pate & Heiman (1981).

Vroom and Jago (1978), tested the decision rules separately and found some decision rules obtained greater support than others, though validation evidence now supports the entire Vroom-Yetton model (Ettling & Jago, 1988). Thus while preliminary results are promising, more research is needed to test the model and its decision rules (Bohnesch 1987; Clement 1983; Ettling & Jago, 1988; Field 1982; Hill 1977; Jago & Ettling 1982; Pate & Heiman, 1981; Vroom & Yetton, 1973; Wedley & Field, 1982).

While Erffmeyer (1983) found some support for the validity of the model, he concluded that there were limitations to the generalizability of the Vroom-Yetton (1973) model. Results for two groups of leaders, nurses and managers, generally supported the model. Decisions made by methods in accordance with the Vroom-Yetton model were perceived by nurses to be more effective and were better accepted than decisions made by methods that violated the rules underlying the Vroom-Yetton model. Managers' decisions that followed the model were perceived to be both of higher quality and were better accepted than decisions that were not in accordance with the Vroom-Yetton model. However, results of the two other groups of leaders, university administrators and fraternity and sorority presidents, showed no support for the validity of the Vroom-Yetton model. Erffmeyer found that nurses supported the Vroom-Yetton model on two of the three evaluative measures; these being the significant feasibility main effects for effectiveness and acceptance. Erffmeyer also found that 72% of decisions made by the nurses fell within the feasible set. This suggests that nurses' decision-making behavior closely resembles that of typical managers. Thus, the principles underlying the model and the potential applications of the model appear to generalize to nurses as leaders in their professional settings.

With regard to university administrators, Erffmeyer (1983) found no support for the Vroom-Yetton (1973) model on any of the three dependent variables. That is, evaluations by the university administrators and their faculty members of decision effectiveness, quality, and acceptance showed no variation as a function of whether or not the decision was made by a method that fell within the set. Interestingly, the university administrators had the highest rate of feasible decisions, 84%, of any groups of leaders reported in earlier studies. By Vroom-Yetton (1973) model standards, university administrators appear to have above average ability in decision making. One hundred percent of decisions made outside the feasible set also were successful. These atypical findings may be because the University leaders are different from the typical leaders used in Vroom-Yetton research. This may be because University administrators differ from typical managers in a number of ways (Erffmeyer, 1983). University administrators are usually well educated, highly regarded and usually appointed with the sanction of department members. They were not unilaterally appointed by senior management as is the case with leaders. This, coupled with consistently high ratings for measures of decision effectiveness, quality and acceptance, may, in part, account for the failure of the Vroom-Yetton model to generalize to the university setting. The university is also not profit oriented as is the case with most business organizations. This may result in the university administrator taking a somewhat different approach to leading his/her organization. Louden (1980) reached a very similar conclusion with school administrators. The validity of the Vroom-Yetton model was supported by managers in the Clement (1983) study as well as in a number of other studies (e.g. Jago & Vroom, 1978; Vroom & Jago, 1978, Wedley & Field, 1982). However, previous research typically used either data that had been entirely self-reported by the leaders (Jago & Vroom, 1978; Vroom & Jago, 1978; Vroom & Yetton, 1973; Wedley & Field, 1982) or hypothetical problem set cases that have questionable external validity (Field, 1982; Margerison & Glube, 1979; Pate and Heiman, 1981; Vroom & Yetton, 1973; and Wedley & Field, 1982).

The Vroom and Yetton (1973) model has also been validated by students, dry cleaning employees, insurance claims supervisors, manufacturing companies, retail department store supervisors, community college chairpersons, and numerous managers/subordinates (Hill, 1977; Jago, 1978; Leana, 1987; Margerison & Glube, 1979 ; Paul & Ebadi, 1989; Taylor, 1982; Vroom & Yetton, 1973). Validation has been received from Canadians, Americans and Australians (Bottger, Hallein & Yetton, 1985; Field, 1982; Leana, 1987). Overall, the research to date has provided support for the Vroom-Yetton model. Having said that, the methodological limitations of the model will be examined.

Limitations of Research on the Vroom-Yetton Model

Self Report Effect

One threat to the internal validity of the Vroom-Yetton (1973) model is that a number of studies have used self report data. Asking leaders to select decisions introduces a potential source of bias since there appears to be a strong selection bias operating in favor of more effective decisions (Vroom & Jago, 1978; Vroom & Yetton, 1973). Field (1981) suggests that leaders reported their decisions as being more effective and more frequent than they actually were. This may be because leaders do not wish to appear ineffective, and thus they cognitively distort the true effectiveness of a decision. Equally, leaders often perceive themselves as acting in a rational manner, consistent with the situation being faced, even when their behavior may not have been rational. Since the Vroom-Yetton model is a normative, rational model, self reported leader behavior is likely to fit the model, and therefore fall in the feasible set.

Findings of this type indicate an inherent problem in studying the

Vroom-Yetton (1973) model. Vroom and Yetton attempted to test the overall validity of the model by claiming that:

> The validity of the rules underlying the model would be indicated by the degree to which employment of methods used that were outside the feasible set result in decisions of lower quality or lower acceptance than those within. (p. 183).

Given this criteria, the model is generally considered valid since approximately 60-70% of leaders' successful decisions fall within the feasible set (Erffmeyer, 1983; Pate & Heiman, 1981; Vroom & Yetton, 1973; Wedley & Field, 1982). Although the Vroom-Yetton (1973) model is descriptive of decision-making behavior, the high incidence of feasible decisions appears to limit studies attempting to assess the validity of the Vroom-Yetton model. The high rate of feasible decisions may also limit the potential usefulness of the model as a prescriptive tool. To evaluate the validity of the Vroom-Yetton model, it is necessary to obtain a sample of ineffective as well as effective decisions. Most leaders, however, are reluctant to report ineffective decisions.

It is precisely for this reason that Argyris (1976) objected to relying solely on self-reported behavior to assess leadership style. The assumption that a leader can honestly report the decision styles actually employed in different situations is also in question. To minimize the effects of self-report data, a more objective observable approach of measuring actual behavior was used.

In this regard, House, Field and Steiman (1982) concluded, on the basis of an assessment of the validity of ratings by leaders and a single subordinate, that the bias in managerial reporting reflects a recall bias rather than a distortion in the evaluation of the decision. Their findings suggest that once a decision strategy was selected, the manager's evaluation of the decision process used and measures of decision effectiveness were valid.

Another source of error resulting from bias occurs when the dependent variables of decision effectiveness, quality, and acceptance are self reported. When asked to report an effective decision, the manager often reports high decision effectiveness, quality and acceptance, perhaps based on cognitive distortion of the actual levels of these variables. Similarly, when reporting on ineffective decisions, the actual levels of the dependent variables could be distorted cognitively and thus reported at levels lower than what they are actually. The effect of this error would be to artificially increase the difference between effective and ineffective decisions and thereby increase the probability of supporting hypotheses concerning either effective or ineffective decisions (Field, 1981).

Additionally, construct validity threats may occur from a common method effect. That is, it is possible that results arise, at least in part, from a common method artifact; group decision-method and follower task performance are both reported by the manager.

Jago and Vroom (1975) reported that followers' perceptions of managerial behavior did not correlate significantly with superiors' self descriptions of the same behavior. This brings into question the validity of manager self reports. To test this, Jago and Vroom (1977) matched what managers said they would do in standard cases to what they did in similar self reported cases, and found a significant positive correlation. This suggests that managers act as they indicated they would act on a hypothetical decision problems, although the finding is a correlation between two self reports.

Heilman, Hornstein, Cage and Herschiag (1984) suggest that the perspective of the individual who is viewing leader's behavior influences evaluation of the leader's tasks. That is, perspective appears to alter the extent to which the Vroom-Yetton (1973) model is used as a standard against which to measure leaders effectiveness. Respondents who assumed the role of management evaluated the leader's effectiveness and actions in accordance with the Vroom-Yetton model only when the situation was one in which participative behavior was prescribed. This suggests that how one evaluates leader behavior may depend on the context in which the evaluation takes place, and that the same individual may use different criteria to judge the effectiveness of leaders depending upon where he or she stands vis-a-vis others in an organization.

This finding is consistent with Vroom and Yetton's (1973) view of differential evaluations, especially on self-report data, where a manager's evaluation of him/herself probably says more about a manager's ideal self than about his/her actual behavior. Similarly, reports regarding the behavior of superiors (i.e. reporting as a subordinate) probably conveys more about his/her attitude toward his/her superior than about his/her superior's actual behavior. Hierarchical status and individual roles are only two perspective differences that result in differential evaluations.

Conversely, Erffmeyer (1983) examined superior-subordinate agreement on their perceptions of the effectiveness, quality, and acceptance of decisions selected by leaders. Results indicate that across all four types of leaders studied and across all three dependent variables, a difference between the leader's and the subordinates' ratings existed in only three of twelve instances. In each case, the leader's ratings were higher than the ratings of the subordinates. This confirms the findings of House, Field and Steinman (1982) who suggest that managers and their subordinates generally agree in their perceptions of decision characteristics.

Parsimony-Decision Processes

The Vroom-Yetton (1973) model has been criticized because it deals with only a small part of leadership and has a number of conceptual weaknesses such as lack of parsimony and an oversimplification of decision processes (Crouch & Yetton, 1987; Field, 1979; Yukl, 1989). The Vroom-Yetton model fails to differentiate among feasible responses. The rationale of the decision rules tells a manager what not to do, but does not indicate what to do. That is, while the Vroom-Yetton model eliminates procedures from the feasible set, it does not indicate which of the remaining procedures is best. The Vroom-Yetton model also fails to differentiate among non-feasible decision processes. Since it may be assumed that all behaviors within the feasible set are not equally effective, it follows that the behaviors outside the set may not be equally ineffective (Vroom & Jago, 1988).

In discussing limitations of the Vroom-Yetton (1973) model, Crouch and Yetton (1987) suggest that the decision-making behaviors listed as options for management problem solving are incompletely defined. As an example, Vroom and Yetton (1973) prescribe group decision methods both for managing conflict (the conflict rule) and for solving unstructured problems (the unstructured problem rule). A naive reader may be tempted to assume that these two forms of group decision processes are similar, although they have different purposes and require different behavior by both manager and subordinates to be effective. Crouch and Yetton point out that a careful matching of diagnostics (rules in the Vroom-Yetton model) with behavior would clarify the behavioral differences between decision methods to which Vroom and Yetton give similar labels.

Situational Effects

The Vroom-Yetton (1973) model may fail to capture differences among situations because simple yes-no responses are all that is required to respond to the situational questions (Vroom & Jago, 1988). That is, the decision rules are too simple. Primitive contingencies in a complex model oversimplify complex human phenomena and fail to capture the complexities of organizational reality. "Yes" or "no" responses to complex questions pose fundamental concerns regarding evaluation and measurement (Eilon, 1978).

In some cases situational variables are unclear. For example, the two questions "does the problem possess a quality requirement?" and "is the problem important?" may be synonymous. Moreover, how are quality and importance measured? What happens when you share the problem with some relevant subordinates but not with others? What is precisely meant by "sharing a problem" (Eilon, 1978). Is information sufficient to make a high quality decision? "Sufficient" and "high quality" require precise definition. Additionally, problems may start out unstructured but end up structured; some questions initially appear structured but become increasingly ill-defined as the manager clarifies objectives and constraints (Eilon, 1978). Important attributes of the situation are sometimes ignored, in particular, the level of subordinate information, the implications of severe time constraints, and the practicality of geographical constraints (Vroom & Jago, 1988).

Vroom and Yetton's (1973) implicit assumption that problem characteristics are exogenously defined (Crouch & Yetton, 1987) presents another limitation of their model. Some managers admit to avoiding conflict because they lack conflict management skills. This suggests that problems might be specified according to a manager's behavioral capabilities. As a result, situational effects within the Vroom-Yetton model may be reinterpreted as leader behavior effects (Crouch & Yetton, 1987).

Field and House (1990) found no support for the Vroom-Yetton model based on follower data. This may have been due to differences in managers' and subordinates specification of the problem. It is difficult to ensure that any sample of decisions reflects true variation in actual effectiveness. The Vroom-Yetton model does not acknowledge the existence of company power structures or company politics which may affect how decisions are made. The Vroom-Yetton model assumes a rational approach which may only be applied appropriately in limited circumstances (Eilon, 1978).

Leader Knowledge and Skills

A further weakness of the Vroom-Yetton (1973) model is its assumption that managers actually possess the skills necessary to apply the model (Vroom & Yetton, 1973; Yukl,1989). It is assumed that managers have sufficient skill to use each of the decision procedures. No guidelines on how to use the behaviors are provided, and personal skills are not factors in determining which procedure is most appropriate (Crouch & Yetton, 1987; Field, 1979, Yukl, 1989).

Crouch and Yetton (1987) concluded that several assumptions underlying the Vroom-Yetton model were not valid for unskilled leaders. Apparently, in situations where conflict among subordinates exists, group procedures were effective for leaders who had conflict management skills, but not for leaders lacking these skills. Leaders without conflict management skills effectively utilized individual consultation which does not require direct confrontation of subordinates. Perhaps the potential benefits of group decisions are minimized by lack of personal leader skills (Yukl, 1989).

Subordinate Knowledge/Perceptions

Further Vroom-Yetton (1973) model limitations concern the assumption that the leader has sufficient knowledge, understanding and familiarity with subordinate skill levels (Yukl, 1989). The relationships between the decision processes and the perceived subordinate characteristics may be distorted through the retrospective and self-report nature of many of the research designs employed to evaluate the model (Leana, 1987). Bottger, Hallein and Yetton (1985) found that highly trained subordinates are involved more than poorly trained subordinates in the decision-making procedure on complex problems. Generally, their results suggest that managers take an instrumental approach to participation, using subordinate participation to the extent that it protects decision quality and acceptance.

Within a cost-benefit analysis framework, managers seem to balance the benefits of possible incremental quality and acceptance gains against the human resource opportunity costs of increased participation (Eilon, 1978). Leana (1987) found that managers chose to share, rather than delegate, decisions that are considered to be of consequence to the organization. Managers indicated they would delegate rather than use a participation process when the subordinate was described as having sufficient information to make the decision. Thus, characteristics of the subordinate substantially influence managers' choice of decision making process.

Managers are often requested to provide access to a number of subordinates to complete a questionnaire. Crouch and Yetton (1987) caution that this type of survey procedure may introduce two other potential sources of bias. First, managers may chose subordinates to participate in the study with whom they are on friendly terms. Secondly, there may be a similar bias, either positive or negative, among subordinates who responded.

Longitudinal or Single-point Studies

Decision processes are treated as single, discreet episodes at a single point in time. Very few research studies examining the Vroom-Yetton (1973) model used longitudinal data. Such a single-point strategy does not take into account that most important decisions involve multiple meetings with a variety of different people at different times. That is, repeated cycles occur as decisions are returned for revisions prerequisite to acceptance by powerful individuals not directly involved in the initial decision-making process (Yukl, 1989).

Similarly, a potential measurement difficulty results from an insufficient time lapse between the making of a decision and an evaluation of its results (Field & House, 1990). Additionally, differences between decision processes and decision results may be the consequence of differing methodologies. For example, in some situations, the leader is a member of an actual working group and thus could immediately determine decision effectiveness. Conversely, self-report on hypothetical problems does not provide the manager with real feedback on solution effectiveness. Solutions in the hypothetical cases are never affirmed or denied by the situation (Clement, 1983).

Causal Direction

Crouch and Yetton (1987) express concern regarding the imputed causality ascribed to cross-sectional data. Causal direction cannot be tested with cross-sectional data. Crouch and Yetton assert that the relationship between managerial group decision methods when conflict is present and follower performance is moderated by the manager's conflict management skills. Alternately, a plausible interpretation of the significant interaction between decision method and follower performance is the manager's willingness to use a group decision method. This could moderate the relationship between manager behavioral skill and follower performance. The validity of either of these alternate interpretations has not been empirically substantiated. The issue, therefore, may stem from alternative conceptual assumptions.

The pervasive assumption that the Vroom-Yetton (1973) Normative Model of Leadership could reliably predict successful decision-making (Field, 1982; Jago & Vroom, 1980; Mitter, 1984; Vroom & Jago, 1974, 1978). It was not substantiated by Tjosvold, Wedley and Field (1986). Regression analysis indicated that constructive controversy accounted for 45% of the variance in decision success, whereas the Vroom-Yetton model accounted for only 5%. While the Vroom-Yetton model is useful at preplanning stages for choosing a decision-making style, greater contribution seems to be provided by constructive discussions of opposing opinions. This discussion actually generates the decision.

Personal interactions can influence the dynamics and outcomes of decision-making greatly. In particular, skilled discussion of opposing positions contributes substantially to managerial decision-making.

Two investigations have recently concluded that research has been supportive of the Vroom-Yetton (1973) model and has provided validation evidence to support the entire model (Ettling & Jago, 1988; Field & House, 1990). Appendix "A" summaries the research reviewed by the present author and is the basis of the methodology, associated results/outcomes, and subsequent limitations of the research on the Vroom-Yetton model of normative leadership that follows.

Summary of Literature Review

Situational leadership theory has suffered from ambiguity, lack of accurate measures, reliance on weak research designs that do not permit strong inferences about direction of causality and rejection of some initial theoretical propositions. In general, though, most situational leadership principles are supported empirically (Eilon, 1978). In particular, the Vroom-Yetton Normative Model of Leadership (1973) is probably the most well researched and best supported of the situational leadership theories (Yukl, 1989) and the best example of systematic research focusing on the situational predictors of participative decision making (Schweiger & Leana, 1986). The Vroom-Yetton model focuses on specific aspects of behavior and includes meaningful intervening variables which moderate the relationships between behavior and outcomes. The intervening variables include consideration of the subordinate, task, situation and problem orientation. As such, Vroom-Yetton research provides support to contingency theory and suggests that there is no one "best" style that managers do not stick to a single style dictated by their personalities and systems of beliefs (Eilon, 1978) and that leaders hold multiple theories, anyone of which may be activated by the situation in which they find themselves (Heilman et al. 1984).

Yukl (1989) notes that forms of participative leadership are functional when the following conditions are present: 1) the leader has the authority to make a decision, 2) the decision can be made without stringent time limitation, 3) subordinates have the relevant knowledge to discuss and implement the decision, 4) subordinates' characteristics (values, attitudes, needs) are congruent with the decision to participate, and 5) the leader is skilled in the use of participative techniques.

The Vroom-Yetton Normative Model of Leadership (1973) assumes that items 1-4 above are considered in the application of the decision rules. The lack of the fifth attribute is a noted weakness of the model. Other noted weaknesses include: 1) decision processes are treated as a single, discreet episode at one point in time, 2) some important decision procedures are excluded and 3) the model is not parsimonious (Field, 1979; Yukl, 1989). Vroom and Jago (1988) identify other shortcomings which include: 1) model fails to differentiate among feasible responses, 2) model fails to differentiate among nonfeasible decision processes, 3) model fails to capture all meaningful differences among existing problem attributes, 4) important attributes are ignored and 5) the decision rules are exclusively simplistic.

Heilman and his co-researchers (1984), however, selected the Vroom-Yetton (1973) Normative Model of leadership for their investigations for several reasons. First, the Vroom-Yetton model is explicitly prescriptive. No extrapolation from theory to prescription is necessary therefore. Second, evidence for the validity of the model has been gathered both in the field using self reports (Margerison & Glube, 1979; Vroom & Jago, 1978; Vroom & Yetton, 1978) and in the laboratory (Field, 1982). Finally, Vroom and Yetton developed standardized cases, which vary in the problem attributes constituting the contingencies.

On the basis of Erffmeyer (1983), it could be speculated that the Vroom-Yetton (1973) model is most likely to prove valid in leadership situations similar to the "typical" managerial situations upon which the model was developed and with which it was validated subsequently. The exact parameters defining these situations are not specified by Erffmeyer. However, they likely include: 1) a leader who has been appointed by upper-limit management rather than elected or sanctioned by the subordinates, 2) a leader whose primary loyalty is to those below him/her in the organizational hierarchy, 3) a primary organizational orientation toward profit or service rather than toward academic or personal goals, and 4) consumer situation in which the user of the service or product is outside organization rather than a member of the organization itself.

Louden (1980) cautions in generalizing from one administrative situation to another distinctly different situation. The results of his study support the contention that public schools are quite different organizations from those in which much of the research into organizational functioning has been conducted. It is important that these differences be recognized and that the preparation of educational administrators be structured to take these differences into account. Taylor (1982), on the other hand, showed that the Vroom-Yetton (1973) decision process model can be used to describe the preferred decision style of academic managers and in identifying strengths and weaknesses of the decision behaviors of chairpersons.

Crouch and Yetton's (1987) analysis represents performance as a joint function of leadership style and behavior with neither being effective without the other. Apparently, many leaders are limited in their conflict management skills. If good conflict management skills can provide gains in followers' performance, then there is a need for conflict management training. Crouch and Yetton (1987) and Tjosvold, Wedley and Field (1986) support the concept that conflict of ideas can improve and contribute to successful leadership decision making. This is consistent with Maier's (1963) notion that a skilled discussion leader can obtain higher quality solutions to problems than an unskilled leader. Leaders would be able to facilitate enhanced performance through group interaction and discussion if they were trained both in conflict management and in diagnosis of problem characteristics using the Vroom-Yetton (1973) model (Crouch & Yetton, 1987; Tjosvold, Wedley & Field, 1986). Leaders, therefore, require training in both diagnostic skills and process implementation skills. Further, it would be advantageous to train both leaders and their followers in conflict management so that the followers were able to effectively participate in a conflict laden interaction, that is, an open discussion and confrontation of differences.

Clement (1983) distills the research on the Vroom-Yetton (1973) Normative Model down to two main points. First, there is considerable evidence from a variety of sources that indicates situational effects account for more than three times the variance attributed to individual differences when explaining decision styles. Estimates based on different populations and using different research methods indicate that individual differences account for approximately 10% of the variance in decision styles, and situational differences account for approximately 30% of the total variance in decision styles. Second, leaders' choice of decision-behavior agree with the Vroom-Yetton feasible set of decision styles 60% to 70% of the time.

Simonton (1978) claims that Napoleon accounted for "only 15 percent of the variance in French military history. Most generals and managers would give their eye teeth for this extra 10 or 15 percent of the variance" (Fiedler & House, 1988). Because 60-70% of leader's successful decisions fall within the Vroom-Yetton (1973) feasible set, the use of the Vroom-Yetton Normative Model of Leadership has the potential to improve the remaining 30% of decisions.

Alternatives to the Vroom-Yetton (1973) model have been proposed and tested, but none have been supported. There was no support found for any proposed additions to the Vroom-Yetton model (Field, 1981). Moreover, the Vroom-Yetton model has been used successfully in many different decision situations (Tjosvold, Wedley & Field, 1986). Support for the model is apparent since the Vroom-Yetton model has been supported in previous field tests and in this laboratory test, while alternative models were not supported. Ettling and Jago (1988) suggest that validation evidence is now available to support the entire Vroom-Yetton model. Field and House (1990) also claim there is support for the validity of the model's prescriptions. Therefore, the model can be used by leaders to select decision processes used in particular situations as well as to increase overall decision effectiveness (Field, 1981). The use of the Vroom-Yetton model to prescribe appropriate decision-making methods cannot guarantee more effective decisions. However, for appropriate groups of leaders, the Vroom-Yetton model may work to reduce errors made in current managerial decision-making situations.

CHAPTER III: RESEARCH PURPOSE AND STATEMENT OF THE PROBLEM

Leadership is generally defined as the ability or potential to influence other people in the attainment of a desired end or goal. Examination of the leadership literature, however, is somewhat confusing since different studies have focused on different leadership aspects such as traits, skills, behaviors, styles, power relationships, and decision making. Stogdill (1974) concluded there are almost as many definitions of leadership as there are persons who have attempted to define the concept.

Leadership has been viewed as the culmination of certain personal attributes and skills which set the stage for acts of leadership. Additionally, leadership has also been understood as a type of social process or exchange between the leader and the led. As well, leadership has been defined as the performance of particular activities or tasks associated with a position of leadership. Some individuals think of leadership as all of the above applied to a particular context and hold that the leadership function differs from situation to situation. Leadership, therefore, can only be understood in a context; and styles of performance must be tailored to fit the context (Downey, 1987). This latter view is consistent with Vroom and Yetton's (1973) view of leadership as a role focusing on the social processes which are utilized in decision making.

It is widely assumed that leaders have the responsibility to exercise leadership in their organizations and that their ability to fulfill this role will have important consequences for the effectiveness of the organization. Vroom and Yetton (1973) also assume that the effectiveness of an organizational decision is an outcome of effective decision-making processes. Therefore, an understanding of the decision-making process is critical not only for the explanation of individual behavior but also for an understanding of the behavior of complex organizations.

Vroom and Yetton (1973) suggest that knowledge related to the identification, development and enhancement of leadership must be immersed in societal value. Vroom and Yetton developed the normative model with the intent of practical application to the field of leader development.

Vroom and Yetton (1973) encourage leaders to critically examine their leadership methods so as to match their behavior to situational demands. A specific component of their model addresses the extent to which a problem is structured. The leader's choice of a decision process is then a normative question as to which behavior should be used to make the decision.

The current investigation is concerned with the issue of leadership behavior and evaluation of the organizational consequences of a leader adapting a particular behavior or leadership style. The leader's decision-making behavior is the independent variable and the organizational consequences of this behavior are the dependent variables.

Decision scenarios containing different combinations of situational problems is a test of leadership behavior. Gathering information and observing discrepancies between how a leader behaves and how he/she should behave is potentially relevant to the development of technologies for leadership improvement.

The purpose of the current investigation is to determine the extent or degree to which the Vroom-Yetton (1973) model can contribute toward leadership development. Are leaders who conform to the Vroom-Yetton (1973) model more effective than those who do not? This will be done by examining the relationship between conformity to the Vroom-Yetton model and organization/leader effectiveness as reported not only by leaders but also by followers.

The following research questions are asked in order to explore the behavior of leaders and the utility of the Vroom-Yetton (1973) model: 1) "How do leaders behave?", 2) "Does leader behavior affect organizational effectiveness?", 3) "Do demographic variables influence leader behavior and effectiveness?", 4) "Does organizational variation influence leader behavior and effectiveness?". The formal hypotheses are presented in Table 4 at the end of this chapter.

Question #1: Descriptive Properties

The Vroom-Yetton (1973) model has several classification systems. It categorizes leaders in terms of their conformity to the Vroom-Yetton model, leadership behaviors by level of follower participation, situations by the problem attributes, and rules according to their intended purpose. In addition, measuring instruments and rules governing relationships among the systems have been formulated. Through a series of studies, Vroom and his associates present evidence that these systems do describe typical leadership behavior. A component of the current investigation will be directed at confirming the descriptive properties of the Vroom-Yetton model. "What do leaders do when faced with certain situations?"

The following question is concerned with this issue. Will the leaders responding to the cases agree with the feasible set and with the time efficient criteria significantly more than could have occurred by chance.

Vroom and Yetton's (1973) central thesis is that aspects of leadership style, which are reflected in leaders' choices regarding the amount of opportunity provided to subordinates to participate in making decisions, vary not only among leaders but also within a single leader, that is, leaders employ more than one decision-making behavior in carrying out their formal leadership roles (Vroom & Yetton, 1973). Intrapersonal (within-person) variation in leadership style and situational factors affect on leaders' choices of decision processes are addressed by the following research questions:

1. How do leaders behave?
    1.1. Does an individual leader's decision-making behavior vary from situation to situation?
    1.2. Does decision-making behavior vary across leaders?
    1.3. Do decisions selected by leaders agree with the feasible set more often than could have occurred by chance?
    1.4. To what degree do leaders' decisions agree with the time-efficient criterion (TEC) and the time-investment criterion (TIC)?

For this study, chance levels are defined when leader decision behaviors are randomly selected over the 30 problem scenarios. If average subject agreement is higher than could have occurred by chance, then it may be concluded that the subjects are responding in a manner consistent with the Vroom-Yetton model (Hill, 1977).

Leadership agreement with the Vroom-Yetton (1973) model as an index of similarity will be explored by having leaders respond to a standardized set of thirty problem scenarios and determining whether the leaders responses are inside or outside the Vroom-Yetton acceptable range. The following indices will be determined for question 1: a) mean level of participation (MLP), b) agreement with the feasible set (AFS), c) agreement with the time- efficient criterion (TEC), and d) agreement with time-investment criterion. (TIC). The standardized cases and measurement indices are more fully described in the methods section (see page 67).

Question #2: Normative Properties

Although there is no universally accepted definition of a successful leader, the majority of research that has attempted to define leader success has employed performance measures (productivity) and follower satisfaction as criteria (Stogdill, 1974). Leadership effectiveness is generally measured in terms of productivity and less often in terms of follower satisfaction. The consequences of the leader-follower relationship appear critical in discriminating between successful and unsuccessful leaders. Schneider (1985) describes productivity in terms of various organizationally-relevant outcomes (e.g. quality, quantity, turnover) at all levels of analysis (individual, group, organizational). Organizational interventions such as leadership training seem to be particularly effective for increasing performance output (Katzell & Guzzo, 1983).

Despite the common belief that greater worker participation in decision making will increase industry productivity and worker satisfaction, the research evidence overall is not sufficiently strong and consistent to draw definitive conclusions. Margerison and Glube (1979) found support for the proposition that leaders high in agreement with the feasible sets of the Vroom and Yetton model had workers with higher levels of productivity and higher levels of job satisfaction. They suggested that further research should be conducted to confirm that their data was not situation specific and, in fact, if it could be generalized to worker satisfaction and productivity in other industries. Schweiger and Leana (1986) conducted extensive analyses in participative decision making (PDM) and their review, comparing the effects of PDM on measures of individual performance, indicates that there is little evidence in either the laboratory or the field to suggest that PDM is consistently superior or inferior to non-PDM. Studies that compared the effects of PDM to subordinate satisfaction found PDM to be superior to non-PDM. We are left with the conclusions that PDM sometimes results in higher satisfaction and performance, and at other times does not (Yukl, 1989).

Vroom and Yetton (1973) maintained that effective leaders conform more closely to their model than less effective leaders. Furthermore, they claimed that participation can increase job satisfaction, the quality of the decision, the commitment to the decision, and the development of followers. These benefits, however, are sometimes offset by the costs of time. This current investigation will test if benefits do result by assessing leaders in terms of conformity to the Vroom-Yetton time-efficient model, and relating these measures to the leadership effectiveness outcome variables. These variables are further described in the "Methods" section (see page 69). The following questions are directed at these issues:

2. Does leader behavior affect organization effectiveness?

2.1 Is there a relationship between conformity to the Vroom-Yetton model, as measured by agreement with the feasible set and conformity to the time-efficient criterion, and the leadership effectiveness outcome variables?

Question #3: Leader Demographics

Concepts of leadership as a personality trait have been inconclusive. Drucker (1985) claims there is no "effective personality". Effective leaders differ as widely as ineffectual ones and are indistinguishable in type, personality and talents. The current investigation, however, is concerned with job-related traits, not personality traits, as a means of distinguishing effective from ineffectual leaders. For example, does leadership behavior tend to become increasingly autocratic as one moves up the organizational hierarchy or are higher levels of leadership more participative? The job-related and personal traits considered in the current investigation are: age, gender, education, years of work experience, years in management, years with current organization, number of direct reports, weeks of leadership training, salary level and administration level. The following questions are directed at these issues:

3. Do demographic variables influence leader behavior and effectiveness?

3.1 Is there a relationship between leader demographic variables and a) conformity to the model and b) organizational outcome effectiveness?

Question #4: Organizational Differences

A secondary purpose of this study is to examine and compare differing aspects of organizational structure on leadership behavior. The current investigation will focus on the behavior of leaders in various organizations characterized by hierarchical relations, complex structures and differentiated technologies. Vroom and Jago (1974) did not find significant major differences in the use of decision style when three distinct management groups were studied. Others have found similar results, suggesting that organizational variables do not have a significant effect on the selection of leader behavior. Although McKenna (1978) argued that some distinctive occupational groups should be studied separately with regard to leadership style, Clement (1983) found no evidence relating differences in leadership style to profit and non-profit organizations.

While decision-making situations take different forms in different contexts, there is reason to believe that the Vroom-Yetton (1973) model is applicable to all leadership situations that are encountered in the differing contextual environments of the educational, governmental and business organizations. Thus the current investigation was designed to examine the following:

4. Does organizational variation influence leader behavior and effectiveness?

4.1 Can leadership behavior be separated from the characteristics of the organization? Is type of organization related to a) leader decision-making style, and b) organizational effectiveness outcome variables?

Table 4

Questions: Validation of the Vroom-Yetton (1973)
Normative Model of Leadership

$H1_{11}$: An individual leader's decision-making behavior does vary across the 30 cases.

$H1_{12}$: Individual leader decision-making behaviors do vary from one another.

$H1_{13}$: Individual leader's decision-making behaviors do conform to the feasible set as prescribed by the model.

$H1_{14}$: Individual leader's decision-making behaviors do conform with the time efficient criterion prescribed by the model.

$H1_{21}$: There is a significant relationship between conformity to the Vroom-Yetton model, as measured by agreement with the feasible set and the time efficient criterion; and the organizational outcome effectiveness variables.

$H1_{31}$: There is a significant relationship between demographic variables and (i) conformity to the model, and (ii) organizational effectiveness outcome variables.

$H1_{41}$: There is a significant relationship between type or organization and (i) conformity to the model, and (ii) organizational effectiveness, outcome variables.

CHAPTER IV: METHOD

The basic purpose of this investigation was to examine the relationship between leadership decision-making behavior and leadership effectiveness. Conformity to the Vroom-Yetton (1973) Normative Model of Leadership was used to examine leader decision-making behavior. The leadership effectiveness outcomes were measured using the Bass and Avolio (1990) Multifactor Leadership Questionnaire (MLQ). A variety of leaders from various organizations participated in the study.

Subjects

Leaders

For the purposes of this study, a leader is defined as any person responsible for resolving a situation or recommending a resolution within the context of a formal organization. These leaders had managerial responsibility for directing and coordinating followers and/or peers that were assigned to natural work groups in the organization.

The mean *age* of this diverse sample of leaders was 43.4 with a standard deviation of 5.0 years. Of the 55 leaders, 39 (71%) were *male* and 16 (29%) were *female*; 36 (65%) worked for *government* and 19 (35%) worked for *non-government* organizations. *Non-government* organizations spanned the education, oil and gas, research, health services and financial fields. Government leaders represented the municipal, provincial and federal government sectors. The mean *level of education* was a four year university degree although 33% of the leaders had achieved a graduate degree. Means for *years full time work experience*, *years in management or supervisory position* and *years with* *present organization* were 21.5, 13.7 and 11.5 respectively. The mean *administrative level* of the leaders was a unit/department head; however, 25% of the leaders were general/executive managers. The leaders supervised a mean of 7.6 workers and had received a mean of 2.4 weeks *leadership training* in the past five years. The mean *salary* was in the $60-80,000 range with 15% earning greater than $100,000 annually. Means, standard deviations and ranges of demographic variables are shown in Table 5.

Followers

Over 250 followers participated in this study. A minimum of three raters for each leader was used (mean 4.6; std dev 1.2). The raters were selected from the leader's organization and were drawn by a designated organizational research coordinator from the pool of people who had either a direct reporting relationship to or a working relationship with the leader. In most instances the raters were selected by a project coordinator. In some instances all the direct reports of the leader rated the leader. In a few instances the leaders selected the raters from a pool of direct reports. A 92% rate of response was received from the raters.

Representative demographics of the followers are not available. Because of the anonymity provided by the informed consent, many did not complete the demographic portion of the raters questionnaire.

Instruments

Data for this study were obtained by means of paper-and-pencil instruments measuring leader decision-making behavior and leadership effectiveness outcomes. The data were provided by participating leaders as well as followers, and/or peers. Instruments included a series of

Table 5
Leader Demographic Profile

	Mean	Standard Deviation	Range	
Age: Years	43.4	5.0	33	54
Education level [a]	5.9	1.9	3	8
Yrs. Work	21.5	6.5	9	37
Yrs. Management	13.7	6.7	2	28
Yrs. Organization	11.5	9.2	1	31
Direct Reports	7.6	8.4	0	42
Wks Leadership Trng	2.4	2.4	0	14
Salary Level [b]	4.1	1.9	1	9
Admin Level [c]	2.8	1.1	1	6

n = 55

a. Education Level

1. Elementary
2. Some High School
3. High School Grad
4. Some College
5. 2-yr. College Grad.
6. 4-yr. College Grad
7. Some Grad Work
8. Graduate Degree

b. Salary Level

1. $20,000 or less
2. $21-40,000
3. $41.60,000
4. $61-80,000
5. $81-100,000
6. $101-120,000
7. $121-140,000
8. $141-160,000
9. $161-180,000
10. $181-200,000
11. More than $200,000

c. Admin Level

1. First Level Supervisor
2. Mgr. of Supervisors
3. Unit/Dept. Manager
4. General/Executive Mgr
5. Individual/Contributor
6. Other

thirty case studies measuring leader decision-making behavior and a multifactor leadership questionnaire measuring leadership effectiveness variables. Figure 3 presents this study's research design identifying the variables: leader decision-making behavior, leader demographics, organizational variables and the three categories of leadership outcomes of satisfaction, amount of extra effort and effectiveness. Figure 4 presents the same design depicting the two major instruments: a) Kepner-Tregoe Case Studies, and b) Multifactor Leadership Questionnaire (see Appendix AA for Ethics Review).

The Case Studies (Kepner-Tregoe, 1990)

The leader's decision-making behavior was assessed by using the standardized case method developed by Vroom and his associates (Vroom & Jago, 1974). Kepner-Tregoe Associates Limited (Appendix C, p. 162) supplied the cases consisting of short narratives which describe a typical leadership situation. A sample of the cases used in this study is presented in Appendix J.

The leaders were instructed to respond to each of the thirty cases independently. From five decision-making behaviors, leaders were to select the one they would use for each. These decision-making behaviors fall along a continuum from least participative to most participative. These decision-making behaviors are different degrees of participation or different ways people can take part in decision-making situations. The cases represent heterogeneous decision problems covering a range of many different kinds of decisions and are positioned at varied administrative levels in many different types of organizations. In each case, the leader assumes the role of the leader described in the case scenario and indicates which decision-making behavior he/she would use

Figure 3

Research Design: Variables

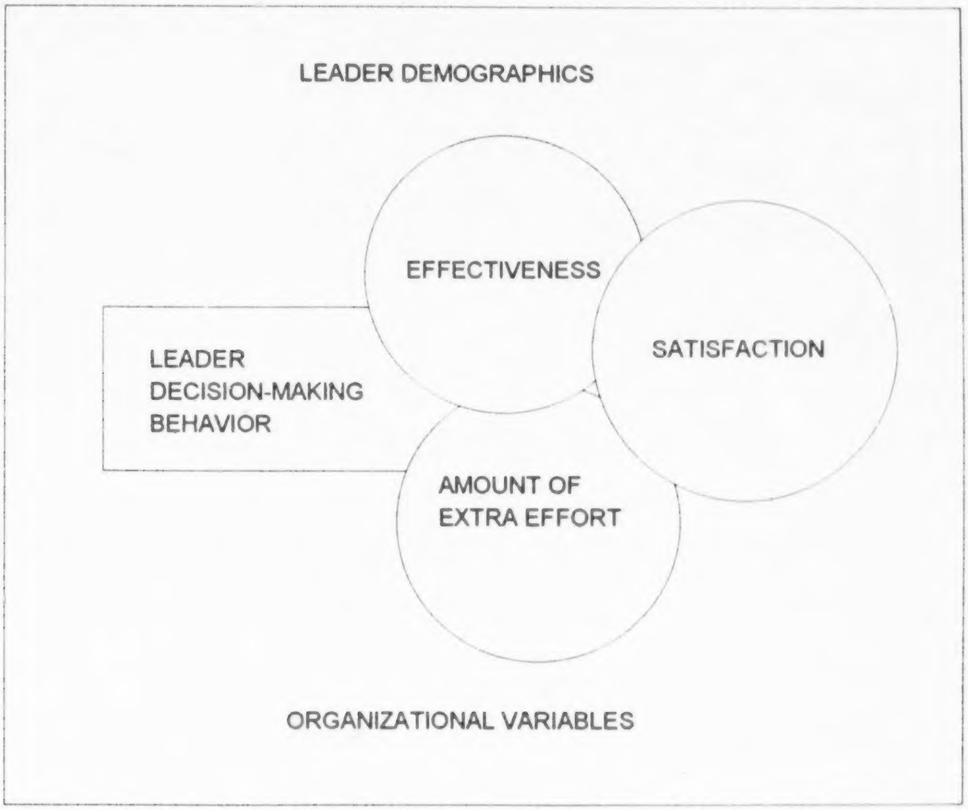
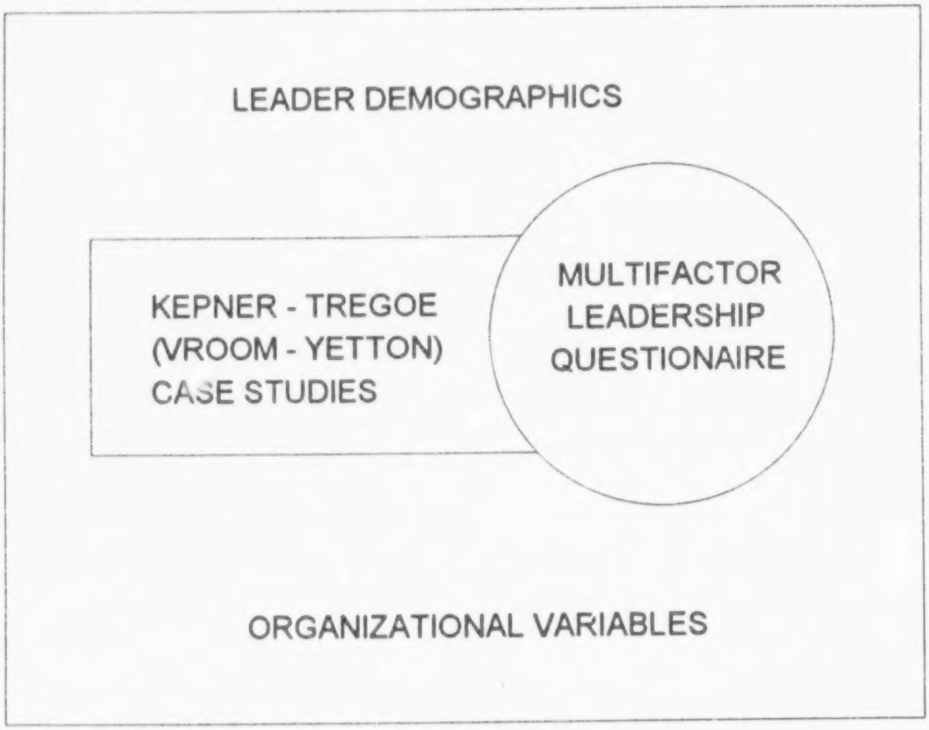

LEADER DEMOGRAPHICS
EFFECTIVENESS
SATISFACTION
LEADER DECISION-MAKING BEHAVIOR
AMOUNT OF EXTRA EFFORT
ORGANIZATIONAL VARIABLES

Figure 4

Research Design: Instruments


LEADER DEMOGRAPHICS
KEPNER - TREGOE
(VROOM - YETTON)
CASE STUDIES
MULTIFACTOR
LEADERSHIP
QUESTIONAIRE
ORGANIZATIONAL VARIABLES

if faced with the specified situation. All leaders are given the same set of cases thus eliminating spurious effects stemming from the influence of uncontrolled variables on problem selection (Vroom & Yetton, 1973).

For the purpose of statistical analysis, Vroom and Yetton (1973) developed an ordered metric unidimensional scale assigning scale values to each of the leader behaviors. They realized that the development of a descriptive model would be greatly aided if it could be shown that the decision processes could be arranged on a unidimensional scale and if nonarbitrary, scale values could be assigned to the five alternates. Rather than following standard practice and assuming distances to be equal by assigning numbers such as 1, 2, 3, 4 and 5 to A1 (resolve alone), A11 (question individuals), C1 (consult individuals), C11 (consult groups) and G11 (resolve as group) (Figure 1) they had a strong *a priori* reason for believing that the distances among them may not be equal. Using a procedure outlined by Coombs (1964), whereby rank order data is used as the basis for establishing the unidimensionality of a scale, the two extreme styles, A1 (resolve alone) and G11 (resolve as group), were arbitrarily assigned numerical scale values of 0 and 10, respectively. Through the use of the Goode Algorithm, numerical assignments were obtained for each of the three intervening methods, A11 (question individuals), C1 (consult individuals) and C11 (consult groups). The ordered metric scale obtained by this procedure is shown below (Vroom & Yetton, 1973).

A1	A11	C1	C11	G11
0	.625	5.0	8.125	10.0

The distance between A1 (resolve alone) and A11 (question individuals) is small; not surprising given that in A1 (resolve alone) the follower does not participate at all and in A11 (question individuals) the subordinate functions as a source of data for the leader. Higher numbers represent greater involvement of subordinates and greater opportunities for them to influence the ultimate decision. G11 (resolve as group) represents ten units of participation (ten being an arbitrary end point representing maximum involvement). From the standpoint of the subordinates, A11 (question individuals) offers little more involvement or meaningful participation than does A1 (resolve alone). C1 (consult individuals) offers a midrange level of participation. Although C1 (consult individuals) and C11 (consult groups) are both consultative decision processes, C11 (consult groups) is given a value a bit closer to G11 (resolve as group) than to C1 (consult individuals) because it shares with G11 (resolve as group) the group setting at which the decision is discussed (Vroom & Jago, 1988).

The scale's theoretical range is 10 for a person utilizing G11 (resolve as group) on all thirty cases to 0 for a person utilizing A1 (resolve as group) on all thirty cases. Vroom and Jago (1988) report a mean level of participation of 4.97 observed on 2,631 managers. This is significantly higher than the mean of 4.69 reported by Vroom and Yetton for 571 managers in 1973. Further analysis by Vroom and Jago (1988) show the distribution around this mean score to be bell shaped with 90 percent of all leaders achieving mean scores varying from 2.92 (the fifth percentile) to 7.02 (the ninety-fifth percentile).

The following independent measures were derived from these cases:

1. Mean Level of Participation (MLP) is indicative of the leader's (subject's) average level of participation across all 30 cases. The MLP is the mean of the scale values assigned to the leadership decision-making behavior selected by the leader on the cases.

2. Agreement with the Feasible Set (AFS) is indicative of the extent to which the leader-subject responded to the cases in a manner congruent with the Vroom-Yetton model. It is computed by counting the number of cases in which the subjects' response falls within the feasible set recommended by the model.

3. Agreement with the Time-Efficient Criterion (TEC) is indicative of the extent to which the subject responded to the cases in a manner that is congruent with the time-efficient model A. It is computed by counting the number of cases in which the subject's response is the same as the response recommended by the model.

4. Agreement with the Time-Investment Criterion (TIC) is indicative of the extent to which the subject responded to the cases in a manner that is congruent with the time-investment model B. It is computed by counting the number of cases in which subjects' responses fall within the feasible set recommended by the model.

5. Overall Guideline Agreement (OGA) is indicative of the extent to which the subject responded to the cases in a manner that is congruent with the models seven guidelines. It is computed by counting the number of occasions in which subjects' responses agree with the guidelines recommended by the model for each particular case.

Multi-Factor Leadership Questionnaire (Bass & Avolio, 1990)

It is difficult to know the appropriate level of analysis (e.g. individuals, groups, or organizations) to which investigation should be applied/focused. The Multi-Factor Leadership Questionnaire (MLQ) measures multi levels within the organization. It addresses individual motivations, individual job-related needs, work-unit effectiveness and organizational effectiveness. The MLQ was selected because of these unique properties enabling the study to measure the multi-levels.

The Multi-Factor Leadership Questionnaire (MLQ) was used to measure leadership effectiveness outcome variables of: (i) individual/organizational effectiveness, (ii) follower satisfaction with leader, and (iii) amount of extra effort. Each outcome is described in detail below:

I. Amount Extra Effort (AEE) -- reflects the extent to which followers have a heightened motivation to succeed and attempt to surpass their own and group performance expectations.

2. Relations to Higher-Ups (RELAUP) -- reflects the degree to which the leader is able to represent individual's needs to higher authority in the organization.

3. Unit Effectiveness (UNITEFF) -- reflects how effectively the work unit, composed of the leader and the leader's group, met or even surpassed its goals.

4. Job Effectiveness (JOBEFF) -- reflects the extent to which the leader meets individuals' job related needs and sufficiently improves their performance.

5. Organizational Effectiveness (ORGEFF) -- reflects the degree to which the leader contributes directly to the effectiveness of the work group, unit and organization.

6. Satisfaction (SATISFC) -- reflects level of contentment among the followers with the leaders' style and methods, as well as how

satisfied followers are that their work related needs are well represented and satisfactorily met.

The MLQ evaluates how frequently, or to what degree, a leader engages in a specific leadership behavior. A five-point rating scale for rating the frequency of observed leader behaviors is used and bears magnitude estimation-based rates of 4:3:2:1:0 according to a tested list of anchors provided by Bass, Cascio, and Connor (1974). Ratings of effectiveness are completed on a 5-point scale from 4 (extremely effective) to 0 (not effective at all). The satisfaction scale is also rated on a 5-point scale from 4 (very satisfied) to "0" (very dissatisfied).

Reliability

Alpha reliability coefficients for the MLQ Follower Rating Form scales are: Extra Effort (EE) .82, Effectiveness (EFF) .93 and Satisfaction (SAT) .95. The alpha reliability coefficients for the MLQ Leader-Rating Form were lower for each scale, yielding a range of .67 (Eff) to .92 (SAT). A possible explanation for the difference in reliability between the Self-rating and Ratings Forms is that leaders interpret each item about themselves with respect to multiple followers, while followers rate a single leader. Such multiple comparisons by the leader may result in lower internal consistency with leadership factor scales. Generally, Bass and Avolio (1990) recommend using the followers' descriptions for research purposes due to the higher reliabilities. Research suggests that leaders tend to inflate their ratings in comparison to those received from followers. The Bass and Avolio samples involved 1,006 followers rating 251 business and industry leaders. Bass, Valengi, Farrow and Solomon (1975) reported high internal consistency (x=.95) for the effectiveness scale. The satisfaction correlated highly (x=.85) in previous research (Waldman, Bass, and Einstein, 1985).

Test-retest reliability coefficiency, collected on 33 Fortune 500 middle-to-upper-level managers and 198 followers over a six-month period, were Extra Effort .62 (EE), Effectiveness .73 (EFF) and Satisfaction .85 (SAT).

The three outcome factors correlated .61 on average with each other for follower ratings and .41 for self ratings. Sample involves 474 coworkers rating 169 leaders (Bass & Avolio, 1990). An earlier problem set of 30 cases was found to have a connected split-half reliability of .81 (Hill, 1977).

Validity

The factors comprising the MLQ were conceptually and empirically derived from two independently conducted factor analyses (Bass, 1985) using the principal components method with varimax rotation. The factors have maintained almost the same structure in two replications of the original factor analyses (Hater & Bass, 1988; Seltzer & Bass, in press).

To date, data collected on the MLQ indicate substantial support for the construct validity of the factors that comprise it (Bass & Avolio, 1990). The scales have been found internally consistent, and test-retest reliability over a six-month interval has been good. The key factors measured by the MLQ have been empirically linked to the individual and organizational success.

Many field studies validated the Vroom-Yetton model by comparing the effects of decisions made according to the overall models' prescriptions with the effects of decisions which were inconsistent with the model (Jago & Vroom, 1978, 1980; Tjosvold & Wedley, 1986; Vroom & Jago, 1978; Vroom & Yetton, 1973; Zimmer, 1978).

Research findings for both the descriptive and normative aspects of the Vroom-Yetton model generally show agreement between results found both in the laboratory and in the field (Schweiger & Leana, 1986).

Support for the validity of the decision rules have been found by several researchers (Yetton, 1972, Vroom & Yetton, 1978; Field, 1982; Ettling & Jago, 1988; Clements, 1983). According to Vroom & Jago (1988) studies have tested the decision rules separately and found some decision rules obtained greater support than others. Validation evidence now supports the entire Vroom-Yetton model (Ettling & Jago, 1988; Field & House, 1990).

Erffmeyer (1983) found limitations to the generalizability of the model. However, overall the model has been validated by numerous occupations and nationalities (Hill, 1977; Jago, 1978; Leana, 1987; Margerison & Glube, 1979; Paul & Ebadi, 1989; Taylor, 1982; Vroom & Yetton 1973; Bottger, Hallein & Yetton, 1984; Field, 1982).

Data Collection

The initial data-gathering process commenced October, 1991. After receiving ethical clearance from the Department of Educational Psychology, University of Alberta, a mass mailing was conducted to more than 100 senior human resource administrators/executives belonging to either the Human Resource Institute of Alberta or the Personnel Association of Edmonton. In addition, over 250 invitations to participate in a "Leadership Effectiveness Research Study" were distributed to participants of a national Human Resource Development

Canada Conference, Banff, October, 1991 (Appendix F, p. 167). The intent was that these two sources would reach potential research subjects within the province of Alberta and Canada-wide.

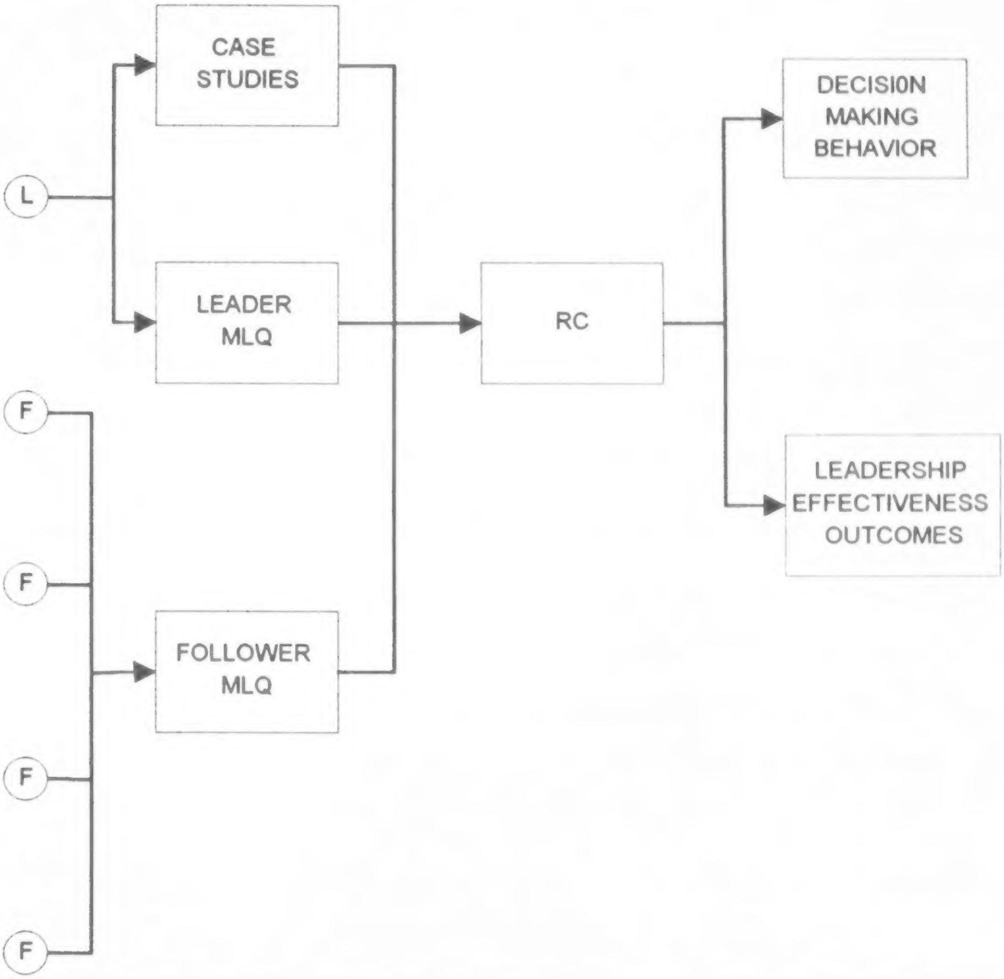
On a more focused perspective, a personal-contact strategy was directed towards the four targeted research environments. Entry into the educational field was sought through discussions with various educational bodies. These included a provincial education department, a conference of provincial school superintendents, a council of school administrators and a municipal public school board. Interest by this sector was very limited.

Numerous presentations and discussions were required to enlist the participating subjects. In several instances, organizations which initially agreed to participate withdrew from the research when either leaders and/or their followers were reluctant to participate. Two other organizations withdrew in the early stages when organizational upheavals, due to government change and corporate downsizing, rendered the research topic inappropriate at that time. Data collection was completed in July, 1992, ten months later.

Organizations agreed to participate on the basis of a mix of letters, telephone discussions and personal presentations. A typical letter is provided in Appendix K and generally provides the organization an invitation to participate and research background information. In addition to stating the purpose of the research and describing the instruments, the letter suggests benefits to be gained from participation and provided a fairly detailed research design. Figure 5 presents a flow chart depicting the research procedure. None of the participating leaders received any prior training nor were they aware the Vroom-Yetton

Figure 5

RESEARCH PROCEDURES


CASE STUDIES
L
LEADER MLQ
F
F
FOLLOWER MLQ
F
F
RC
DECISION MAKING BEHAVIOR
LEADERSHIP EFFECTIVENESS OUTCOMES

NOTE:

L = Leader
F = Follower
MLQ = Multifactor Leadership Questionaire
RC = Research coordinator

Normative model was being tested. All participants, leaders and followers, completed the instruments confidentially, anonymously and on organization time.

Analysis of Data

The goal of this study is to understand the patterns of relationships among leader demographics, decision-making behaviors and organizational outcomes. Accordingly, a variety of descriptive and inferential statistics were used. Data were electronically recorded, stored, edited, and analyzed using SPSSX. Descriptive statistical procedures included: visual depictions (frequency distributions, histograms, bargraphs); and measures of central tendency (mean, median, mode); and measures of variability (standard deviation, variance, range). Pearson-product-moment-correlations were used to examine relationships among selected variables. Multiple regression explored the relationship among the decision-making variables/measures and any significant organizational outcomes. T-Tests and Analyses of Variance (ANOVA) were used to determine whether there were group differences on: demographics, decision-making behavior and organizational-outcome data. Level of significance was set at .05.

CHAPTER V: RESULTS AND DISCUSSION

Correlational Analysis

Pearson-product-moment-correlations were computed for all the sets of variables in this current investigation. Table 6 summarizes the significant correlations which are discussed in more detail later in this chapter.

Leader Demographic Variables

Table 7 summarizes correlations between leader demographic variables. Numerous significant correlations emerged revealing some expected and interesting trends among leaders. For example, not surprisingly, years of work were highly correlated with leader age (r=.85, p.<.001), suggesting that the older a leader was, the more years he/she had been employed. Unexpected results include the significant negative correlations between *education* and *years of work*, *years of management* and *years with organization* suggesting that the senior leaders of the sample are less educated than the less senior leaders.

Vroom-Yetton Decision-Making Variables

As can be seen in Table 8, numerous significant correlations occurred between Vroom-Yetton decision-making variables.

Mean level of participation correlated with three of the other four decision-making variables: a moderately-strong negative correlation with *"time-efficient model"* (r=-.78, p<.001), a moderately-strong positive correlation with the *time investment model* (r=.73, p<.001) and a moderate correlation with *overall guideline agreement* (r = 40, p<.001). *Mean level of participation*, which measures participative behavior, had a positive relationship to *time investment* and negative relationship to

Table 6

Data Analysis: Correlation Tables

	MLP	AFS	TEC	TIC	OAGA	RAEE	R-UP	R-UNT	R-JB	R-ORG	R-SAT	LAEE	L-UP	L-UT	L-JB	L-ORG	L-SAT	AGE	ED	ORG	YRS W	YRS M	YRS O	DIRTS	TRNG	$	ADMIN	SEX
MLP			*	*	*										*		*											
AFS			*		*																							*
TEC				*											*						*							
TIC															*													
OAGA															*	*												*
RAEE							*	*	*	*		*			*		*		*				*					
R-UP								*	*	*	*		*				*		*									
R-UNT									*	*			*	*	*	*	*		*									*
R-JB										*			*	*	*	*	*		*									
R-ORG											*						*											
R-SAT												*																
LAEE													*		*	*	*							*	*		*	
L-UP														*	*	*	*							*			*	
L-UT															*	*	*											
L-JB																*	*											
L-ORG																	*								*			
L-SAT																			*									
AGE																				*	*	*						*
ED																					*	*	*					
ORG																											*	
YRS W																						*	*					*
YRS M																							*			*		*
YRS O																												
DIRTS																										*	*	
TRNG																												
$																												
ADMIN																											*	*
SEX																												

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n = 55

Note:

MLP = Mean Level of Participation

AFS = Agreement with Feasible Set

TEC = Agreement with Time Efficient Model

TIC = Agreement with Time Investment Model

OGA = Overall Guideline Agreement

RAEE = Amount of Extra Effort

RRELAUP = Relations to Higher-Ups

RUNITEFF = Unit Effectiveness

RJOBEFF = Job Effectiveness

RORGEFF = Organizational Effectiveness

RSATISFC = Satisfaction

LAEE = Amount of Extra Effort

LRELAVP = Relations to Higher Ups

LUNITEFF = Unit Effectiveness

LJOBEFF = Job Effectiveness

LORGEFF = Organizational Effectiveness

LSATISFC = Satisfaction

AGE = Mean Age in Years

ED = Education

ORG = Type of Organization

YRS W = Years of Work

YRS M = Years of Management

YRS O = Years with Organization

DIRTS = Direct Reports to Leader

TRNG = Weeks of Leadership Training

ADMIN = Administration Level

Table 7

Correlation Between Leader Demographics

	AGE	ED^a	ORG TYPE^b	YRS WORK^c	YRS MGMT^d	YRS ORG^e	DIRECTS^f	WKS TRNG^g	SALARY^h	LEVEL^i	GENDER^j
AGE		-.20	-.28*	.85***	.61***	.42***	.19	-.15	.20	.12	-.36**
ED			-.23	-.49***	-.25**	-.48***	.06	-.16	.11	.14	-.11
ORG TYPE				-.13	-.09	.06	-.21	-.04	-.15	-.27*	-.06
YRS WORK					.72***	.52***	.11	-.04	.22	.06	-.32**
YRS MGMT						.39**	-.02	-.07	.27*	.13	-.42***
YRS ORG							-.07	-.05	-.10	-.10	-.10
DIRECTS								.16	.31**	.46***	.06
WKS TRNG									-.15	.02	.06
SALARY										.37**	-.27*
LEVEL											-.13
GENDER											

*P< .05   1 - Tailed Sig   ** P< .01   *** P< .001   n=55

Note:
a= education
b= organiation type
c= years work
d= years management
e= years organization
f= direct reports
g= weeks of leadership training
h= salary
i= administration level
j= gender

Table 8

Correlations Between Vroom-Yetton Decision-Making Variables

	MLP	AFS	TEC	TIC	OGA	$\bar{X}$
MLP		-.12	-.78***	.73***	.40***	.51
AFS			.35**	-.03	.65***	.29
TEC				-.84***	.00	.49
TIC					.20	.45
OGA						.31

*p<.05 **p<.01 ***p<.001 n = 55

Note:

MLP = Mean Level of Participation

AFS = Agreement with Feasible Set

TEC = Agreement with Time Efficient Model

TIC = Agreement with Time Investment Model

OGA = Overall Guideline Agreement

time efficiency which is the most time constraining model. As *mean level of participation* increases, *time investment* increases and *time efficiency* decreases, suggesting that the Vroom-Yetton model has construct validity.

Agreement with feasible set correlates with *time efficiency* (r=.35, p<.01) and *overall guideline agreement* moderately highly (r=.65, p<.001). Apparently, conformity with the *feasible set* is implicated in conformity to the guidelines. Also, conformity to the *feasible set* is related to the *time efficient model* and not to the *time investment model*. This would suggest that the model, even though it is participative in nature, leans towards time efficiency, suggesting that the model does not advocate total involvement of followers.

The *time efficient model* had moderately high negative correlation with both *mean level of participation* (r=-.78, p<.001) and *time investment criterion* (r=-.84, p<.001). This is as expected and provides further support for construct validity.

The *time investment model* correlated with *mean level of participation* (r=.73, p<.001) and with the *time efficient* model (r=.84, p<.001). Again as *time investment* increases, *mean level of participation* increases while *time efficiency* decreases. The low correlations between *agreement with feasible set, overall guideline agreement* and time variables suggest that following the model makes little difference how time is used. *Time investment* is negatively correlated (r=-.84, p<.001) with *time efficiency* suggesting that these have opposite premises.

Overall guideline agreement correlated with *agreement with feasible set* (r=.65, p<.001) and with *mean level of participation* (r=.40, p<.001). Therefore, *following the guidelines* does not seem to be related to either the *time efficient* or *time investment* model. This seems appropriate because the primary purpose of the guidelines is to protect the quality and acceptance of the solutions. It does not encourage one behavior style over the other but rather, suggests a guideline to assist choosing options, according to particular needs.

MLQ Leadership Effectiveness Outcomes

As detailed in Table 9, there were numerous significant correlations between the follower-rated leadership effectiveness outcomes. For example, *amount of extra effort* was highly correlated (r=.81, p<.001) with *job effectiveness*, suggesting that *extra effort* increases individual performance. *Relations to higher-ups* is highly correlated (r=.84, p<.001) with *organizational effectiveness* suggesting that a leader who is perceived as watching out for an individual's needs is contributing directly to the effectiveness of the organization. When individuals needs are met, the work unit's effectiveness increases, as suggested by the strong correlation (r=.84 p<.001) between *job effectiveness* and *unit effectiveness*. Of note is that in followers responses *amount of extra effort*, *unit effectiveness,* and *job effectiveness* are uncorrelated with *satisfaction* with the leader.

Table 10 summarizes relationships between leadership effectiveness variables as rated by leaders themselves. As can be seen, the leaders had a higher frequency of significant correlations; however, the relative strength of the correlations was smaller.

Different from the followers, the leaders had moderate to moderately-strong significant correlations between *satisfaction* and all other variables with a range from r=.36, p<.01 to r-=.63, p<.001. This

Table 9

Correlations Between Leadership Effectiveness Outcomes: Follower Rated

	RAEE	RRELAUP	RUNITEFF	RJOBEFF	RORGEFF	RSATISFC
RAEE		.48***	.66***	.81***	.62***	.19
RRELAUP			.53***	.64***	.84***	.63***
RUNITEFF				.84***	.65***	.09
RJOBEFF					.75***	.22
RORGEFF						.65***
RSATISFC						

*p<.05 **p<.01 ***p<.001 n = 55

NOTE:

R = Follower-rated

RAEE = Amount of Extra Effort

RRELAUP = Relations to Higher-Ups

RUNITEFF = Unit Effectiveness

RJOBEFF = Job Effectiveness

RORGEFF = Organizational Effectiveness

RSATISFC = Satisfaction

Table 10

Correlations Between Leadership Effectiveness Outcomes: Leader Rated

	LAEE	LRELAUP	LUNITEFF	LJOBEFF	LORGEFF	LSATISFC
LAEE		.35**	.18	.54***	.37**	.36**
LRELAUP			.63***	.55***	.39**	.47***
LUNITEFF				.43***	.43***	.48***
LJOBEFF					.54***	.63***
LORGEFF						.40**
LSATISFC						

*p<.05 **p<.01 ***p<.001 n = 55

Note:

L = Leader-rated

LAEE = Amount of Extra Effort

LRELAVP = Relations to Higher Ups

LUNITEFF = Unit Effectiveness

LJOBEFF = Job Effectiveness

LORGEFF = Organizational Effectiveness

LSATISFC = Satisfaction

suggests that leaders see satisfaction differently than do followers. The leaders correlate *satisfaction* to all levels of organization analysis whereas the followers correlate *satisfaction* to higher levels of the organization, for example *organizational effectiveness* and *relations to higher-ups* rather than to performance of individuals and work groups.

Data from Case Studies Decision-Making Variables

Conformity to the Vroom-Yetton model is measured by tabulating leader self-reported responses to 30 decision-making cases and compiling several measures. The mean frequency with which each of the five leader decision-making behaviors was chosen is shown in Table 11. Means for each of A1 (resolve alone), A11 (question individuals), C1 (consult individuals), C11 (consult group) and GI1 (resolve as group) were 4.64, 2.33, 4.89, 8.00 and 10.17 respectively suggesting that there was a strong preference for using the group decision-making behaviors C11 (consult group) and G11 (resolve as group).

The resultant *mean level of participation* for this sample of 55 leaders was 6.42 with a standard deviation of 1.2. This score is based on the ordered metric scale whereby each decision-making behavior is assigned the following values: A1 (resolve alone) = 0:0; A11 (question individuals) = .625; C1 (consult individuals) = 5.00; C11 (consult group) = 8.125 and G11 (resolve as group) = 10.0. The MLP range was 3.85 to 9.65. A leader whose MLP score was 9.65 can certainly be said to be more participative than one with a mean of 3.85. Some of the variance in behavior within managers can be attributed to common tendencies to respond to particular situations by withholding power and to others by sharing it.

Table 11

Leader Decision-Making Behavior Profile

	Mean	Standard Deviation	Range	
		Decision Making Behaviors		
A1	4.64	2.81	.00	12.00
A11	2.33	2.16	.00	9.00
C1	4.89	2.33	.00	10.00
C11	8.00	3.26	1.00	15.00
G11	10.17	4.36	3.00	26.00
		Decision Making Variables		
MLP	6.42	1.2	3.85	9.65
AFS (%)	.74	1.0	.30	.93
TEC (%)	.27	13.1	.0	.53
TIC (%)	.59	12.5	.35	.85
OGA (%)	.84	6.6	.65	.96
		n = 55		

Note:

C1 = Consult Individuals

G11 = Resolve as Group

AFS = Agreement with Feasible Set

TEC = Time Efficient Criterion

TIC = Some Time Investment Criterion

OGA = Overall Guideline Agreement

A11 = Question Individuals

C11 = Consult Group

MLP = Mean Level of Participation

Leader agreement with the Vroom-Yetton model is calculated by determining the number of occasions that the leader selects a decision-making behavior that is congruent with the mode's feasible set. The mean score for *agreement with feasible set* is 74% with a standard deviation of 10% and range of 30-93%. The mean score for conforming with the *time-efficient model* was 27% and for the *time-investment model* 59%. This is as expected because there are more opportunities for selecting a time-investment behavior within a feasible set. For each feasible set there is only one time-efficient behavior. The mean score for *overall guideline agreement* was 84% suggesting that the leaders generally followed the Vroom-Yetton (1973) model decision rules as presented in Table 3 (see page 23). The intent of each rule is to protect the decision quality and decision acceptance. The *leader information* and *acceptance* rules were most often followed. While the *fairness* and *acceptance priority* rules were most often violated demonstrating that even though leaders have a preference for the G11 (resolve as group) behavior (Table 12), they do not always understand the theory behind selecting that behavior. Each rule uses two or more problem attributes (see Table 2, page 22) to determine if any of the decision behaviors should be eliminated from the feasible set. Both the *fairness* and *acceptance priority* rules eliminate AI (resolve alone), A11 (question individuals), C1 (consult individuals) and C11 (consult group) from the feasible set and automatically move the respondent to *resolve as group* (G11) behavior.

The data also reveal substantial differences among leaders in the frequency with which each style is used. Preferred leader decision-making behavior was determined by noting which behavior was selected most often by the leader (Table 12). As previously noted, G11 (resolve as group) was the decision-making behavior chosen most frequently or preferred by 54.1% of the leaders: 25.6% preferred C11 (consult group) and 9.8% preferred C1 (consult individuals). Only 11.5% of the leaders preferred an autocratic behavior A1 (resolve alone) or A11 (question individuals) compared to 89.5% preferring a participative style. This data shows variance in behavior among leaders.

Several leaders did not choose a certain decision behavior even once (Table 13). At least fourteen leaders chose not to use either autocratic style: A1 (resolve alone) or A11 (question individuals). Three leaders chose neither A1 (resolve alone) nor A11 (question individuals). Not surprisingly, these three individuals, preferring the participative styles, had the three highest *mean level of participation* scores ranging from 8.90 to 9.65 compared to the group mean 6.42. Thirty-nine (72%) of leaders employed each of the five decision-making behaviors some proportion of the time. The data not only revealed substantial differences among leaders in the frequency with which each style is used but also showed variance of behavior within leaders. Each of the 55 leaders responded to 30 cases totaling 1,650 in all. The distribution of decision behaviors chosen is presented in Table 14.

Leader Demographics

Table 15 summarizes correlations between leader demographics and decision-making behaviors . In general, there was negligible or marginal correlation between the demographic and decision-making variables, suggesting that the background characteristics of the leader do not have much impact on the kinds of leadership style he/she chooses. This means that the model is equally as appropriate or inappropriate at all levels of

Table 12

Frequency: Preferred Decision-making Behavior

		Number	Percent
A1	XXXXX	5	8.2
A11	XX	2	3.3
C1	XXXXXX	6	9.8
C11	XXXXXXXXXXXXXXX	15	25.6
G11	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	33	54.1
	Total	61[a]	101.0

n = 55

Note:

a = includes dual preferences; i.e, equal preference for two behaviors

A1 = resolve alone

A11 = question individuals

C1 = consult individuals

C11 = consult group

G11 = resolve as group

Table 13

Frequency: Non-selection of Decision-making Behavior

		Number	Percent
A1	XXX	3	16.7
A11	XXXXXXXXXXXXXX	14	77.7
C1	X	1	5.6
C11	-	0	-
G11	-	0	-
Total		18	100.0

n = 55

Note:

A1 = resolve alone

A11 = question individuals

C1 = consult individuals

C11 = consult group

G11 = resolve as group

Table 14

Use of Leader Behaviors

		# of Cases	% of Cases
A1	Resolve Alone	255	15.5
A2	Question Individuals	128	7.8
C1	Consult Individuals	270	16.3
C2	Consult Group	440	26.7
G2	Resolve as Group	560	33.9
	TOTAL	1,650	100.2

n = 55

Table 15

Correlation Coefficients for Leader Demographic Variables and Vroom-Yetton Decision-Making Variables

	MLP	AFS	TEC	TIC	OGA
AGE	.07	-.18	-.23	.10	-.22
EDUCATION	.07	.03	.12	-.05	.08
ORG TYPE	-.08	-.07	.06	-.06	-.10
YRS WORK	.05	-.16	-.24*	.10	-.19
YRS MGMT	-.03	-.20	-.19	.04	-.19
YRS ORG	.01	.17	-.12	.02	.13
DIRECT REPORTS	-.02	.04	.09	-.16	-.08
WKS LDRSHIP TRNG	-.01	-.16	.02	-.17	-.14
SALARY LEVEL	-.20	-.08	.21	-.20	-.03
ADMIN LEVEL	-.02	.08	.03	-.09	-.02
GENDER	.16	.23*	-.03	.16	.27*

n = 55

*p<.05

Note:

MLP = Mean Level of Participation

AFS = Agreement with Feasible Set

TEC = Agreement with Time Efficient Model

TIC = Agreement with Time Investment Model

OGA = Overall Guideline Agreement

the organization regardless of the individual's background. Three of the 55 correlations reached statistical significance. Given probability values, we would expect this many correlations to occur by chance.

Leadership Effectiveness Outcomes

The leadership effectiveness outcome measures are provided by leader self-report and by follower ratings. Correlations between the decision-making variables and both (leader-rated and follower-rated) sets of organizational outcome data were computed. None of the correlations between the Vroom-Yetton decision-making variables and the follower-rated leadership effectiveness outcome variables were statistically significant (Table 16).

However, when correlations between decision-making variables and leader self-reported leadership effectiveness outcome variables were examined (Table 17), six statistically significant correlations were provided. Interestingly, five of the six correlations were negative. *Job effectiveness,* whereby the leader is seen to meet individuals' job-related needs and sufficiently improve their performance, was related to four of the five decision-making variables: a weak positive correlation with *time efficient criteria* ($r=.30$, $p<.05$); and negative correlation with *mean participation level* ($r=-.36$, $p<.01$) *time investment* ($r=-.26$,$p<.05$), and *overall guideline agreement* ($r=-.24$, $p<.05$). This suggests that leaders equate effectiveness with time efficiency rather than employee involvement.

Table 16

Correlations Between Vroom-Yetton Decision-Making Variables and Follower-Rated Leadership Effectiveness Outcome Variables

	MLP	AFS	TEC	TIC	OGA
RAEE	.11	-.00	-.08	.04	.02
RRELAUP	-.18	.12	.16	-.06	.02
RUNITEFF	-.16	.09	.06	-.01	-.01
RJOBEFF	-.16	.08	.11	-.06	-.07
RORGEFF	-.09	.13	.07	-.00	.06
RSATISFC	-.02	.10	-.03	.09	.07

n = 55

Note:

MLP = Mean Level of Participation

AFS = Agreement with Feasible Set

TEC = Agreement with Time Efficient Model

TIC = Agreement with Time Investment Model

OGA = Overall Guideline Agreement

R = Rater-rated

RAEE = Amount of Extra Effort

RRELAUP = Relations to Higher-Ups

RUNITEF = Unit Effectiveness

RJOBEFF = Job Effectiveness

RORGEFF = Organizational Effectiveness

RSATISFC = Satisfaction

Table 17

Correlations Between Vroom-Yetton Decision-Making Variables and Leader-Rated Leadership Effectiveness Outcome Variables

	MLP	AFS	TEC	TIC	OGA
LAEE	-.08	.13	.02	-.08	-.15
LRELAUP	-.22	.16	.20	-.14	-.07
LUNITEFF	-.16	.01	.17	-.15	.10
LJOBEFF	-.36**	.14	.30*	-.26*	-.24*
LORGEFF	-.16	-.12	.05	-.06	-.29*
LSATISFC	-.29*	.02	.21	-.22	-.22

*p=<.05 **p=<.01 ***p=<.001 n = 55

Note:

MLP = Mean Level of Participation
AFS = Agreement with Feasible Set
TEC = Agreement with Time Efficient Model
TIC = Agreement with Time Investment Model
OGA = Overall Guideline Agreement
L = Leader-rated
LAEE = Amount of Extra Effort
LRELAVP = Relations to Higher Ups
LUNITEFF = Unit Effectiveness
LJOBEFF = Job Effectiveness
LORGEFF = Organizational Effectiveness
SATISFC = Satisfaction

Data from MLQ: Leadership Effectiveness Outcome Variables

The organizational-outcome variables were measured on a five-point scale where for *amount of extra effort* , 0 = not at all, 1 = once in a while, 2 = sometimes, 3 = fairly often, and 4 = frequently, if not always. The effectiveness variables: *relations to higher-ups, unit effectiveness, job effectiveness* and *organizational effectiveness* are rated 0 = not at all, one = only slightly effective, 2 = effective, 3 = very effective, 4 = extremely effective. The key for the *satisfaction* variable was 0 = very dissatisfied, 1 = somewhat dissatisfied, 2 = neither satisfied nor dissatisfied, 3 = fairly satisfied, 4 = very satisfied.

Table 18 presents the mean leadership effectiveness-outcome ratings comparing the leaders with the followers. On all six leadership effectiveness variables, the means are similar and the standard deviations are comparable. The followers report a range of 2.16 (*amount of extra effort)* to 2.94 *(satisfaction)*. The leader's mean self-ratings ranged from 2.49 *(amount of extra effort)* to 2.84 *(organizational effectiveness* and *satisfaction).* Interestingly, the relative ranking of the six variables is similar for both groups. From the lowest mean to the highest, the order is: *amount of extra effort; job effectiveness; unit effectiveness; relations to higher-ups; organizational effectiveness;* and *satisfaction.* The intrinsic factor *satisfaction* has the highest rating and the extrinsic factors at the individual level, *amount of extra-effort* and *job effectiveness* have the lowest ratings.

Only *amount of extra effort* seems to have an appreciable difference with the leaders providing a score .33 higher than the raters. The leaders believe they motivate (heighten the performance and motivation) the followers to a greater extent than is reported by the

Table 18

Leader Profile: Leadership Effectiveness-Outcome Variables

	n = 55	Leader	Follower
Amount of Extra Effort	Max	3.70	3.40
	Mean	2.49	2.16
	Min	1.00	1.00
	S.D.	.65	.66
Relations to Higher-ups	Max	4.00	3.80
	Mean	2.65	2.70
	Min	0.00	0.30
	S.D.	.64	.64
Unit Effectiveness	Max	4.00	3.70
	Mean	2.83	2.62
	Min	1.00	0.20
	S.D.	.81	.66
Job Effectiveness	Max	4.00	3.80
	Mean	2.63	2.49
	Min	1.00	0.20
	S.D.	.66	.71
Organizational Effectiveness	Max	4.00	3.80
	Mean	2.84	2.82
	Min	2.00	1.00
	S.D.	.61	.63
Satisfaction	Max	4.00	4.00
	Mean	2.84	2.94
	Min	1.00	.80
	S.D.	.64	.93

followers themselves. The mean of the follower leadership-effectiveness outcome ratings is 2.6 (quite effective). Note: quite effective is between effective (2.0) and very effective (3.0). The overall rating is simply a mean of the six variable scores. In comparison, the leaders rated themselves slightly higher than the followers on four of the six variables. The overall leader self-rated effectiveness rating was 2.7 versus the follower rating of 2.6 suggesting that both leaders and followers were interpreting the outcome variables in a similar manner depicting good internal consistency.

Leader Demographics and Leadership Effectiveness Outcomes

Table 19 presents correlations between leader demographics and leadership effectiveness outcome variables rated by the followers. A pattern of significant correlations emerged. Leader education was negatively correlated with: *amount of extra effort* ($r=-.27$, $p<05$), *relations to higher-ups* ($r=-.30$, $p<05$), *unit effectiveness* ($r=-.26$, $p<.05$), and *job effectiveness* ($r=-.36$, $p<.01$). This suggests that higher levels of leader *education* from the followers' perspective are not contributing to leadership-effectiveness outcomes in the direction that educators and trainers would expect. These results, however, are similar to cognitive resource theory findings that correlation between leader intellectual abilities and group performance are near zero (Fiedler & House, 1988). Non-directive, participatory leaders who are relatively bright performed considerably less well than did leaders who were relatively dull, especially in non-supportive groups.

Table 20 presents correlations between leader demographics and leader reported leadership effectiveness outcome variables. Of interest is the low negative significant correlation ($r=-.26$, $p<.05$) between leader

Table 19

Correlation Between Leader Demographics and Follower-Rated Leadership Effectiveness Outcome Variables

	RAEE	RRELAUP	RUNITEFF	RJOBEFF	RORGEFF	RSATISFC
AGE	.13	-.16	.08	.01	-.15	.01
ED	-.27*	-.30*	-.26*	-.36**	-.22	-.10
ORG TYPE	.04	.07	.04	-.12	.10	.11
YRS WORK	.22	.08	.10	.18	.05	.12
YRS MGMT	.11	.11	.05	.11	.10	.20
YRS ORG	.27*	.03	.16	.16	.04	.03
DIRECTS	.04	.01	-.13	-.06	-.09	-.07
WKS TRNG	.08	.01	.02	.03	.02	-.15
SALARY	.06	.08	-.05	.13	.17	.14
LEVEL	-.02	-.03	.01	-.00	.09	-.05
GENDER	.22	.20	.30*	.18	.21	.05

*p- <.05 **p<.01 n = 55

Note:

R = Rater-rated

RAEE = Amount of Extra Effort

RRELAUP = Relations to Higher-Ups

RUNITEFF = Unit Effectiveness

RJOBEFF = Job Effectiveness

RORGEFF = Organizational Effectiveness

RSATISFC = Satisfaction

Table 20

Correlation Between Leader Demographics and Leader Rated Leadership Effectiveness Outcome Variables

	LAEE	LRELAUP	LUNITEFF	LJOBEFF	LORGEFF	LSATISFC
AGE	-.09	.01	-.12	.02	-.13	.02
ED	.13	.01	.12	.04	.10	-.26*
ORG TYPE	-.10	-.06	.17	-.16	.07	-.00
YRS WORK	-.02	.14	-.01	-.01	-.12	.16
YRS MGMT	.17	.05	-.07	.04	.04	.17
YRS ORG	.04	-.01	.07	-.16	-.15	-.04
DIRECTS	.31**	.29*	.06	.09	.01	.22
WKS TRNG	.31**	.15	.09	.13	.29*	.08
SALARY	.20	.11	-.11	.20	-.05	.14
LEVEL	.33**	.25*	.09	.12	.05	.11
GENDER	.11	.00	.19	.04	.10	.10

*p=<.05 **p=<.01 n = 55

Note:

L = Leader-rated

LAEE = Amount of Extra Effort

LRELAVP = Relations to Higher Ups

LUNITEFF = Unit Effectiveness

LJOBEFF = Job Effectiveness

LORGEFF = Organizational Effectiveness

LSATISFC = Satisfaction

education and *satisfaction*. This suggests from the self-reported leader data, the more educated the leaders the less satisfied they are with their own effectiveness. This is interesting in view of the follower reported negative *education* correlations discussed above. As with the decision-making variables, there were few significant correlations between the demographic and leadership effectiveness-outcome variables, and those relationships which were statistically significant could be due to chance factors. In any event, the weak magnitude of the correlations is such that they are probably not practically significant. However, the *education* correlations are interesting and may be a subject for future research.

T-Tests: Case Studies and MLQ

Table 21 presents the comparison of the means of self-rated and follower-rated leadership effectiveness outcome variables using t-tests. Only *amount of extra effort* was significantly different between groups: [$t = 3.77$, $p < .05$]. This suggests that there is a difference between how the followers and the leaders perceived the amount of extra effort the followers would exert beyond the ordinary as a consequence of the leadership behavior. Leaders reported a perceived higher level of extra effort on behalf of the followers than the followers rated themselves suggesting the leaders have an inflated perception of follower efforts. To determine if high performing leaders have unique characteristics or are perceived differently from low performing leaders, the decision-making variables were then divided into high and low groups based on whether scores were above or below the means on the Vroom-Yetton measures. T-tests were used to compare leaders and followers ratings on leadership effectiveness variables for high and low groups. Leaders

Table 21

T-Test: Leader Self-Rated and Follower-Rated Leadership Effectiveness Outcome Variables

Variables	T-Value	2-Tail Prob
Amount of extra effort	3.77*	0.00*
Relations to higher-ups	-.047	0.64
Unit effectiveness	1.55	0.13
Job effectiveness	1.81	0.08
Organizational effectiveness	0.28	0.78
Satisfaction	-0.48	0.63

and followers had significantly different views on *amount of extra effort* for both high-low groups for all decision-making variables (Table 22). An analysis of variance, presented in Table 23, showed no significant differences in leader demographics. Table 26 (see page 112) shows the mean ratings data of leadership effectiveness variables for both government and non-government organizations.

Table 22

T-Test: Decision-Making Variables and Leadership Effectiveness Outcome Variables

	Leadership Effectiveness Variables					
Decision-Making Variables	AEE F-L	RELAUP F-L	UNITEFF F-L	JOBEFF F-L	ORGEFF F-L	SATISFC F-L
MLP/Hi	2.43*	-0.29	0.39	0.88	-0.24	-1.10
Lo	2.83*	-0.36	1.73	1.73	0.67	0.89
AFS/HI	2.44*	-0.13	1.74	0.72	-1.02	-0.88
Lo	2.84*	-0.54	0.47	1.68	1.21	0.53
TEC/Hi	2.56*	0.07	1.61	1.79	0.34	0.66
Lo	2.71*	-0.72	0.70	0.89	0.07	-0.90
TIC/Hi	2.38*	-0.56	0.66	1.01	0.43	-0.80
Lo	2.90*	-0.11	1.65	1.57	-0.02	0.46
OGA/Hi	1.70	-0.84	1.90	0.78	-0.89	-1.13
Lo	3.79*	0.17	0.33	1.68	1.44	0.96

Note:

Leaders were divided into two groups, depending on whether they scored High or Low on Decision-making variables. T-tests were used to compare leaders and followers ratings on leader effectiveness variables for High and Low groups.

Table 23

ANOVA: Leader Demographics and Vroom-Yetton Leader Behaviors (F-Values)

	MLP	AFS	TEC	TIC	OGA
AGE	.44	.61	1.93	1.88	1.75
ED	.13	.11	.24	.26	.74
ORGTYPE	.00	.74	.01	.10	.40
YRS WORK	.24	.09	.79	.87	1.70
YRS MGMT	.20	.40	1.04	.24	1.03
YRS ORG	.02	.77	1.00	.11	1.36
DIRECTS	.07	.01	1.11	.82	.41
WKS TRNG	1.22	2.70	1.30	.48	1.45
SALARY	.41	.09	1.28	.64	1.61
ADMIN LEVEL	.21	.66	.02	.00	.00

$p<.05$ $n = 55$

Note:

MLP = Mean Level of Participation

AFS = Agreement with Feasible Set

TEC = Agreement with Time Efficient Model

TIC = Agreement with Time Investment Model

OGA = Overall Guideline Agreement

Organizational Differences: Government versus Non-government

A final aspect of this study is concerned with the effects of organizational variables (structure, culture) on leadership behavior; therefore, a look at the differences between the *government* (n=36) and *non-government* (n=19) organizations participating in this current investigation were examined. Tables 24 to 26 present the mean frequency data and t-values for demographics, decision-making and outcome variables for the two types of organizations participating in this study. The two groups of leaders were very similar in most respects. T-tests showed statistically significant differences between the two groups in three demographic areas; *non-government* leaders had more individuals reporting directly to them, earned a higher *salary* and occupied a higher*administrative* position (Table 24).

Table 25 presents data comparing leader decision-making measures between government and non-government leaders indicating that leaders from both types of organizations responded to the cases in substantially the same manner; there were no statistically significant differences.

Table 26 presents a comparison of mean ratings of each leadership effectiveness outcome for government and non-government leaders. T-tests show that non-government leaders report being more effective than government leaders in representing individual needs to high-level leaders in the organization. This is not surprising since higher-ups in government usually means deputy ministers and ministers who are either elected or appointed and have greater loyalty to the government than to the civil servants. From the follower's perspective, the non-government leaders are perceived to contribute more to both the work-group *unit effectiveness* and *organizational effectiveness*.

Table 24

Average Leader Demographic Profile: Government versus Industry

	T-Values	Government (n=36)	Non-Government (n=19)
Age[a]	-0.77	43.1	44.1
Education[b]	0.15	6.0	5.9
Yrs. Work[c]	-1.29	20.8	23.0
Yrs. Mgmt[d]	-1.77	12.7	15.7
Yrs. Org.[e]	-1.43	10.2	14.1
Direct Reports[f]	-3.39*	5.1	12.6
Wks Ldrship Trng.[g]	-0.06	2.4	2.4
Salary Level[h]	-3.84*	3.5	5.3
Admin Level[i]	-3.58*	2.5	3.6

*p<.05

Note:

a = mean age in years

b = education (see Table 5, page 65)

c = years work

d = years management

e = years with organization

f = direct reports to leader

g = weeks of leadership training

h = salary level (see Table 5, page 65)

i = administration level (see Table 5, page 65)

Table 25

Mean Ratings Data: Decision-Making Behavior Variables for Government and Non-Government Organizations

	T-Values	Government (n=36)	Non-Government (n=19)
MLP	1.27	6.6	6.2
AFS	-0.52	.74	.75
TEC	-1.31	.26	.30
TIC	1.37	.61	.56
OGA	0.35	.83	.82
A1	-0.78	4.43	5.05
A11	-0.09	2.31	2.37
C1	-1.50	4.54	5.53
C11	0.20	8.03	7.84
G	1.19	10.69	9.21

Note:

A1 = Resolve Alone

C1 = Consult Individuals

G2 = Resolve as Group

AFS = Agreement with Feasible Set

TEC = Time Efficient Criterion

TIC = Some Time Investment Criterion

OAA = Overall Guideline Agreement

A2 = Question Individual

C2 = Consult Group

MLP = Mean level of Participation

Table 26

Mean Ratings Data of Leadership Effectiveness Outcome Variables for Government and Non-Government Organizations

	Rater	Leader
AEE		
Government	2.09	2.41
Non-government	2.27	2.64
T-Value	-0.93	-1.33
RELAUP		
Government	2.60	2.45
Non-government	2.89	3.00
T-Value	-1.65	-2.43*
UNITEFF		
Government	2.51	2.79
Non-government	2.84	2.89
T-Value	-2.03*	-0.49
JOBEFF		
Government	2.39	2.59
Non-government	2.68	2.68
T-Value	-1.52	-0.49
ORGEFF		
Government	2.69	2.78
Non-government	3.06	2.90
T-Value	-2.30*	-0.99
SATISFC		
Government	2.89	2.79
Non-government	3.01	2.95
T-Value	-0.43	-0.93

Note: Government n = 36 Non-government n = 19 *$p < .05$

Summary: Data Analysis

Generally, the two instruments used in this investigation, the Vroom-Yetton (1973) Case Studies and the Multifactor Leadership Questionnaire, both have good internal consistency. The leaders in this investigation showed a strong preference to use group decision-making behaviors; C11 (Consult group) and G11 (Resolve as group).

Leader demographics and the Vroom-Yetton (1973) decision-making behaviors did not significantly correlate. This finding was supported by Analysis-of-Variance which showed no significant differences between leader demographics and decision-making behavior. Leader effectiveness outcome variables measured by the Multifactor Leadership Questionnaire negatively correlated with the *education* demographic variable. Significant positive correlations were found between the demographic variables *direct reports*, *weeks of leadership training* and *administration level* and the leadership effectiveness outcome variable *amount of extra effort.* No significant correlations emerged between comparing the decision-making behaviors with follower-rated leadership effectiveness outcome variables. This was supported by Analysis of Variance which showed no significant difference between leader decision-making behavior and follower-rated leadership effectiveness outcomes.

Comparing leader-rated leadership effectiveness variables and the same decision-making variables provided significant correlations between *job effectiveness* and the following decision-making variables: *time-efficient criterion* (positive); *time-investment criterion* (negative); *mean level of participation* (negative) and *overall guideline* *agreement* (negative). Analysis of Variance comparing high and low performing leaders on the decision-making variables showed a significant difference in the areas of *job effectiveness* and the two time-related criteria *(time efficiency* and *time investment).*

A review of the correlational analysis of the follower and leader reported leadership effectiveness outcome variables suggested a difference between the mean scores for the variable *amount of extra effort*. This was supported by a t-test.

Comparing government versus non-government leaders revealed the following data. T-test showed no difference in use of decision-making behaviors between government and non-government leaders. Demographically, non-government leaders had more *direct reports*, higher mean *salary* and *administration levels*. Comparing leadership effectiveness outcome variables showed non-government followers scored significantly higher than their government counterparts in *unit effectiveness* and *organization effectiveness*. Non-government leaders scored themselves higher in *relationships to higher-ups* than government leaders.

The following presents a summary of the research questions and associated hypotheses:

Question #1: Descriptive Properties

1. How do leaders behave?
    1.1. Does an individual leader's decision-making behavior vary from situation to situation?
    1.2. Does decision-making behavior vary across leaders?

1.3. Do decisions selected by leaders agree with the feasible set more often than could have occurred by chance?

1.4. To what degree do leaders' decisions agree with TEC/TIC?

$H1_{1.1}$: An individual leader's decision-making behavior does vary across the 30 cases.

The hypothesis ($H1_{1.1}$) is regarded as tenable. Each leader used at least three of the styles and 95% of leaders used four of the behaviors. 72% of leaders used all five of the behaviors.

$H1_{1.2}$: Individual leader decision-making behaviors do vary from one another.

The hypothesis ($H1_{1.2}$) is regarded as tenable. The mean level of participation was 6.42 with a range of 3.85 to 9.65. No two of the 55 leaders had the same mean. Each decision-making behavior was preferred by some of the leaders.

$H1_{1.3}$: Individual leader's decision-making behaviors do conform to the feasible set as prescribed by the model.

The hypothesis ($H1_{1.3}$) is regarded as tenable. The mean score for agreement with the feasible set was 74%. This is substantially greater than the agreement that could be expected by random chance.

$H1_{1.4}$: Individual leader's decision-making behavior do conform with the time efficient criterion prescribed by the model.

The hypothesis ($H1_{1.4}$) is regarded as tenable. The mean score for conforming to the time-efficient criterion was 27%. This is substantially greater than the conformity that could be expected by random chance.

Question #2: Normative Properties

2. Does leader behavior affect organizational effectiveness?

   2.1 Is there a relationship between conformity to the Vroom-Yetton model as measured by agreement with the feasible set and conformity to the time-efficient criterion, and organizational outcome effectiveness variables?

$H1_{2.1}$: There is a significant relationship between conformity to the Vroom-Yetton model, as measured by agreement with the feasible set and the time efficient criterion; and the organizational outcome effectiveness variables.

There are two parts to this hypothesis because both leaders and followers provided data on organizational outcome effectiveness variables. Data provided by the followers (Table 16, p. 97) does not support the hypothesis ($H1_{2.1}$). There are not statistically significant relationships.

Data provided by the leaders partially supports the hypothesis (Table 17, p. 98). A statistically significant relationship exists between the *time-efficient criterion* and the *job effectiveness* variable ($r=.30$, $p<.05$). However, there are no statistically significant relationships between *agreement with feasible set* and any of the organizational outcome effectiveness variables.

Question #3: Leader Demographics

3. Do demographic variables influence leader behavior and effectiveness?

3.1: Is there a relationship between any of the leader demographic variables; and (a) conformity to the model and (b) organizational outcome effectiveness?

$H1_{3.1}$: There is a significant relationship between demographic variables and (i) conformity to the model and (ii) organizational outcome effectiveness variables.

Part (i) of the hypothesis ($H1_{3.1}$) is not regarded as tenable. There were negligible or marginal correlations between demographic and decision-making variables. Three of the 55 correlations reached statistical significance, but were of low magnitude. However, given probability values, these three correlations could have occurred by chance.

Data for the organizational outcome effectiveness variables were provided separately by the leaders and followers. Reports provided by the followers partially supported the hypothesis. Six of 55 correlations showed statistical significance, however, these were of low magnitude ranging from .26 to .36 (Table 19, p. 102).

The leader reported data (Table 20, p. 103) showed similar results. Seven of 55 correlations were statistically significant. These ranged from r=.26 to r=.33.

Question 4: Organizational Differences:

4. Does organizational variation influence leader behavior and effectiveness?

   4.1 Can leadership behavior be separated from the characteristics of the organization? Is type of organization related to (a) leader decision-making behavior and (b) organizational effectiveness outcome variables?

$H1_{4.1}$: There is a significant relationship between type of organization; and (i) conformity to the model, and (ii) organizational outcome effectiveness, variables.

The data do not regard part (i) of the hypothesis ($H1_{4.1}$) as tenable. Part (ii) of the hypothesis is partially supported by leader data; one of the six organizational outcome effectiveness variables shows statistical significance. For follower data, the hypothesis also is partially supported; correlations between two of the six reported variables reached statistical significance (Tables 25, p. 111 and 26, p. 112).

CHAPTER VI: SUMMARY, LIMITATIONS, FURTHER RESEARCH AND CONCLUSIONS

Question #1: Descriptive Properties

The first research question addresses the descriptive properties of the Vroom-Yetton normative model of leadership: "How do leaders behave?" Results not only reveal substantial differences among leaders in the frequency with which each style is used, but also show variability of behavior within leaders. That is, individual leader decision-making behaviors varied across the 30 cases and individual leader decision-making behavior differs from one leader to the next. Leaders did not adopt the same decision-making processes for the same scenarios.

The majority of leaders (nearly 90%) preferred to use non-autocratic behavior; however, each of the five decision-making behaviors was preferred by at least one leader. The group behaviors C11 (consult group) and G11 (resolve as group) were the most preferred by the leaders. Every leader selected each of these behaviors at least once. These two behaviors (G11 and C11) were selected for over 60% of the 30 cases. They were chosen on average 10.17 (G11) and 8.00 (C11) times. The*mean level of participation* for the study was 6.42 out of 10.0, with a range of 3.85 to 9.65. Only six leaders preferred the autocratic styles A1 (resolve alone) or A11 (question individuals).

Research question #1 also asked whether subject agreement with the Vroom-Yetton model, as measured by the *AFS* and *TEC* , would be greater than could have occurred by chance. For comparisons, chance is defined as the probability that random selection resulted in agreement with the feasible set. The probability that *AFS* could have occurred by chance is 40.0%.

The leaders participating in this study conformed to the Vroom Yetton model by agreeing with the *feasible set* 74% of the time (Table 11), with a range of 30% to 93%. This percentage agreement is considerably higher than chance and it may be concluded that the subjects were responding to the cases in a manner consistent with the Vroom-Yetton model. The *OGA (overall guideline agreement)* measure closely resembles the result obtained with the *AFS (agreement with feasible set)*. For the 30 cases the mean *OGA* was 84%, with a range from 65% to 96%. The *leader information* (95%) and *acceptance* (92%) rules were generally conformed to, while the *fairness* (66%), *acceptance priority* (67%) and *unstructured problem* (70%) rules were less often conformed to (Table 11). These latter rules require a consensus solution (G11 - resolve as group) and eliminate A1 (resolve alone), A11 (question individuals), C1 (consult individuals) and C11 (consult group) from the feasible set of alternative decision processes. These rules also protect the acceptance of the decision. The poor use of the *fairness, acceptance priority* and *problem structure* rules suggests that even though leaders have a preference to use group process, they may not necessarily understand how and when to use group process appropriately and effectively.

Correlations between leaders' responses to the cases prescribed by the model's *time-efficient criterion (TEC)* were generally high. The average percentage agreement with *TEC* was 27% which is compared to a chance value of 14%. The leaders agreed with the *TEC* and the *feasible set* more than could have occurred by chance. To conclude, the decision-making behaviors of the leaders generally agree with the models' *feasible set* which is significantly correlated with the *time-efficient* model. The variable selection of decision behaviors by individual leaders may be attributable to both individual leader differences and situational differences. The data show inter and intra variance as well as conformity to the feasible set and the time efficient criterion. The descriptive properties of the Vroom-Yetton (1973) model were supported.

Question #2: Normative Properties

The second research question examines the relationship between conformity to the Vroom-Yetton model and organizational effectiveness. Organizational effectiveness outcome variables were rated by both leaders and followers. In each case, leader's ratings of organizational outcome variables were similar to ratings of followers. This concurs with House, Field, and Steinman's (1982) finding that the perceptions of managers and their followers are in general agreement.

Interestingly, follower reported scores of the organizational outcome variables (Table 16, p. 97) did not correlate significantly with leader conformity to the model. However, leader scores significantly correlated the *job effectiveness* outcome variable (Table 17, p. 98) and four of the five decision-making variables. *Job effectiveness* showed a positive correlation with *time-efficiency* and negative correlations *with mean level of participation, time-investment* and *overall guideline agreement.* Only the *agreement with feasible set* variable, which is used to measure model conformity, did not correlate significantly with *job effectiveness.*

The negative *job effectiveness* relationships seem to contradict current participative decision-making (PDM) theory which suggests that job effectiveness is enhanced by greater employee involvement. Previous research conducted on employee participation in decision-making (PDM) suggests, that, in general, as participation increases, so too does employee satisfaction (Lock & Schweiger, 1979; Miller & Monge, 1986). Such findings suggest that employee participation foster positive effects such as higher levels of job satisfaction and commitment.

The current findings that *job effectiveness* increases as time-efficiency increases and decreases as employee involvement increases, may be reflective of corporate cultures which advocate and reward time efficiency. While there are numerous definitions of "culture", Gordon and Ditomaso (1992) consider corporate culture to be the pattern of shared and stable beliefs and values that are developed within a company across time. Results of the current investigation suggest that organizations are more concerned with short-term performance than with employee development which requires an investment of time.

The finding that leader rated *satisfaction* decreases as *mean level of participation* increases suggests that leaders do not perceive the benefits of employee involvement. *Satisfaction* measures the degree to which the leader is satisfied with the methods of leadership used as well as the leader's perception of how satisfied the followers are with the leader. Although leaders demonstrate a preference for the participatory process, particularly group process, (C11, G11), their inability to be effective when working with groups may result in an unsatisfactory relationship. Perhaps, in such cases, the leader lacks group process skills.

Previous research has consistently shown little relationship between job satisfaction and performance for individuals, but few studies have analyzed this relationship at the organizational level (Ostroff, 1992). Most research examining the satisfaction- performance relationship has been done only on individuals within an organization. Schneider and Schmitt (1986) suggest that the satisfaction-performance relationship at the organizational level may be stronger than the relationship at the individual level. The current investigation, using intact work groups as the organizational level of analysis, does not support this suggestion. Results from the current investigation do not show significant relationships between follower satisfaction with the leaders' style and methods, and any of the decision-making, demographic or organizational variables.

Broadening participation in the decision-making process has been suggested as a means of improving decision quality and generating understanding and support for potentially controversial managerial decisions. Research in leadership and group dynamics, however, provides conflicting results concerning the impact of participative decision making on the effectiveness of managerial decisions (Ettling & Jago, 1988). This functional democracy, assuming that a certain degree of participation is congruent with the aims of the organization, presumes that an organization can make more effective use of the available information capacities and expertise because participation motivates people (Andriessen & Drenth, 1984). A review of team or group performance by Bass (1980) showed that, all things being equal, interaction processes within a group are the primary determinants of group effectiveness. A critical assumption of Vroom and Yetton's analysis is that group discussion provides a more effective forum for the resolution of task-based conflict than methods that do not permit group interaction. Current findings do not support that assumption. It was found that increased levels of participation were not associated with increased organizational effectiveness.

Question #3: Leader Demographics

The third research question was concerned with the effect of leader demographics on both decision-making and organizational effectiveness. No significant relationships were reported between leader demographics and decision-making variables, suggesting that leader individual differences had little bearing on the decision-making process.

With respect to organizational outcome variables, leaders and followers differed slightly in their reported perceptions. Leader *education* and four of the six organizational outcome variables correlate negatively, that is, as *education* levels increased, the following decreased: *amount of extra effort, relations to higher-ups, unit effectiveness* and *job effectiveness* . Although it is expected that some correlations occurred by chance, it is interesting that four of six significant emerged between the *education* demographic and all are negatively correlated. One might expect leaders with graduate level *education* to be more likely to show ability in formal reasoning than less educated leaders and thus to be more effective. According to the current findings, however, this expectation was not supported.

When investigating whether there was a difference in leader and follower scores, only the *amount of extra effort* variable differed. The leaders perceive that they heighten the performance and motivation the followers to a greater extent than is reported by the followers themselves, suggesting a possible self-report bias.

Question #4: Organizational Differences

The fourth research question addresses the issue of organizational differences. The current investigation compared the difference between *government* and *non-government* organizations. Results indicate that organizational differences existed. Representative *non-government* leaders had more *direct reports*, earned a higher *salary* and occupied higher *administrative positions* than their *government* counterparts. The *non-government* leaders rated themselves higher on *relations to higher-ups* variables than did *government* leaders. The followers rated *non-government* leaders higher (significantly different) on *unit effectiveness* and *organizational effectiveness* . Despite these statistically significant organizational differences between *government* and *non-government* leaders, there are no statistically significant differences between *government* and *non-government* decision-making behaviors.

These results suggest that this sample of *government* and *non-government* leaders' decision-making behavior closely resembles that of "typical" leaders used in previous studies of the Vroom-Yetton model. Most research studies have tended to use leaders from business and industry.

Limitations

Several limitations of the Vroom-Yetton (1973) model were demonstrated by the current investigation. One concern is the high rate of decisions (74%) which fell within the feasible set. This suggests that the model may only have the potential to improve the remaining 26% of decisions, thus limiting the usefulness of the model as a prescriptive tool.

Generalizability of the results is also an issue. The current investigation was of typical government and non-government organizations. Would the results generalize to atypical organizations? The original research design planned to investigate atypical organizations from educational and military settings. Unfortunately, representative samples were not available.

There is the question of whether a leader's behavior chosen for a particular type of problem would generalize into actual behavior on the job. Do persons who indicate that they would use autocratic methods on the standardized problems also behave more autocratically in carrying out "their" jobs? Do those who display the greatest variability in the decision-processes on the problem set also display greatest variability in the opportunity that they provide to their subordinates on the job? The self-report design of the case studies does not allow for follower verification of leaders selected behavior.

Another limitation of the current investigation is that a total random process was not employed to select research participants. In some instances, leaders were selected by the organizational research coordinators because of the perceived willingness of either the leader or his/her followers to participate. In six of 66 instances, leaders declined to participate. Five other leaders completed the instruments; however, they did not receive the minimum three follower respondents. For this reason, these leaders were not part of the sample. The non-random, self-selection process employed in the current investigation may have introduced selection or sample bias.

Although a leader may select a decision-making behavior consistent with the Vroom-Yetton model, the current investigation was unable to determine whether leaders had the skills to effectively use each behavior. As Maier (1963) pointed out, there is a distinction between leadership methods and leadership skills. Two leaders may employ the same autocratic (A1) approach to a particular problem but might achieve very different degrees of success due to differences in their ability to make high quality decisions or to persuade and inspire followers. Similarly, both leaders might employ the method of group decision (G11) but one might be much more successful than the other due to skill differences in conducting group discussion.

The case studies in the current investigation were treated as single, discreet episodes at a single point in time, not taking into account possible multiple work group interactions. As a consequence, the design did not allow for observation of leaders' social interaction skills in a group problem-solving situation. As well, there were no longitudinal aspects to this investigation to determine if decisions were implemented and if so, were they successful or unsuccessful.

No control groups were used to determine if training, either in the Vroom-Yetton model or in general decision-making and leadership skills, would make a difference in rating leader effectiveness. A test-retest design and use of follower rated MLQ would help to minimize any self-report bias.

None of the 55 leaders investigated had any previous Vroom-Yetton knowledge. Comparison of the effectiveness of leaders who had Vroom-Yetton experience against those who did not may have been a more rigorous test of the validity of the model.

As with other research, this study used hypothetical problem set cases that may have questionable external validity (Field, 1982;

Margerison & Glube, 1979; Pate & Heiman, 1981; Vroom & Yetton, 1973; and Wedley & Field, 1982). A major threat to external validity is that since the model was developed and tested using standardized cases and self-reported decisions. Thus, the model may not be generalizable to naturally occurring problem situations. It may be that the cases are unambiguous and that they do not reflect the ambiguity of real-life decisions (Field, 1979).

Internal validity is not a concern in this study because it is correlational and no causal claim is made (Smith & Glass, 1987). On the other hand, correlational studies are more vulnerable to inadequate sampling and measurement. In the current investigation, some leaders were involved in the selection of research participating followers. Allowing the leaders to select the followers introduces a potential source of bias.

Validity threats owing to different composition profiles among the group members must be considered. In this study, the demographics data does not appear to have any significant relationship to decision-making and leadership effectiveness variables beyond what may be expected by chance. In spite of the limitations of the current investigation, some implications for leadership did emerge.

Implications: Leadership Development

The current investigation shows that leaders are flexible, that their behavior does vary and that they prefer participative decision-making behaviors. The study also shows that use of the Vroom-Yetton Normative Model of Leadership (1973) does not guarantee leadership effectiveness. However, appropriate use of the model may assist a leader in determining which decision-making behavior to use in particular situations. The Vroom-Yetton model can assist leaders in developing an understanding of the types of situations that benefit from follower-involvement in participative processes and those that do not.

Problem attributes change from situation to situation. An understanding of the models' problem attributes and decision rules, may assist leaders in diagnosing a situation and understanding potential risks to decision quality and acceptance prior to choosing a decision-making behavior. Selection of an appropriate behavior, again, does not guarantee effectiveness. As evidenced by the current investigation, even though leaders may show conformity to the Vroom-Yetton model and prefer to use participative behaviors, they may not necessarily understand how and when to use the decision-making behaviors.

Effective leaders must know not only when but also how to use each of the five decision-making behaviors. Consequently, leaders must have the appropriate skills to successfully use each of the leader behaviors. To be effective, the leader must be competent in all skills. To use A1 (resolve alone) effectively, a leader needs skills to analyze the situation (decision analysis) and must be skilled in basic problem solving and decision-making processes. To use A11 (question individuals) effectively, the leader needs the skills for A1 (resolve alone) plus questioning skills to obtain the information he/she lacks. C1 (consult individuals) requires the skills for A1 (resolve alone), A2 (question individuals) and active listening.

As participation increases, these skill requirements are cumulative, and the leader must be very skilled in use of G11 (resolve as group). Use of C11 (consult group) and G11 (resolve as group) requires the leader to understand group dynamics. To use C11 (consult group), the leader needs skills for A1 (resolve alone), A11 (question individuals), C1 (consult individuals) and manage meetings as well as conflict. Use of G11 (resolve as a group) requires all the aforementioned skills plus possibly setting group boundaries to ensure success of the group and to achieve consensus.

Leaders can increase their effectiveness by enlarging their repertoire of leadership styles and adapting their styles as the needs and situation change (Dimock, 1985). The Vroom-Yetton model is helpful to assist evaluation of problem situations. By training leaders to develop their skills in diagnosing the situations they are working in, leaders can make better choices for appropriate behavior. As a leader becomes more flexible and comfortable in using a variety of leadership behaviors, and becomes more competent in diagnosing leadership situations and applying the most appropriate behavior, that leader's effectiveness will increase (Dimock, 1987).

It is apparent that social processes facilitate decision making (Tjosvold, Wedley & Field, 1986). It has been suggested that decision makers develop skills to discuss opposing views openly, explore other perspectives, and learn to integrate the best ideas to create high quality, accepted solutions. Thus a need to look at leader "group processing" skills associated with group styles (C11, G11) is apparent. Leaders may select the right decision-making process yet may behave and think in dysfunctional ways not allowing the group to meet their needs effectively. There is a need to train leaders and provide them with guidelines about what to actually do in groups to be effective. Currently, minimum attention is to be paid to this area of leader development.

Leaders need access to behavioral techniques and tools for group work.

Practical Application

Leaders can effectively learn to apply the Vroom-Yetton model in a practical manner through a leader's analysis of actual decision-making situations to assess the effectiveness of their leadership behavior. An assessment of a leaders' past decision making circumstance can be used as an evaluative technique. The situation can be assessed in terms of: what was the situation?; who was involved?; how was the situation resolved?; what were the results?. The leader can assess the identified situation against the Vroom-Yetton problem attributes and decision rules to determine which behavior(s) the model's feasible set recommends. The leader can then compare his/her actual behavior against recommended behavior. How effective was the behavior used? Was the situation successfully resolved? Why or why not?

By assessing a current job situation using the Vroom-Yetton model, problem attributes and decision rules may assist the leader in selecting an appropriate behavior and determining who should be involved. Furthermore, the leader can then assess what skills are required to effectively apply the chosen behavior in the particular situation.

By assessing past and current situations, a leader gains insight into his/her behaviors and relative effectiveness. This may enable the leaders to plan developmental changes. Reflective self-analysis may enable leaders to determine their most and least preferred styles and whether they have the appropriate skills to use each decision-making behavior effectively.

Future Research

Future research of the Vroom-Yetton model must occur in several areas including generalizability of model, leader skills, group process and leader personality.

To what extent do organizational structures and cultures effect leadership practices? The current investigation employed typical government and non-government leaders. Future research should investigate whether leader decision-making behaviors are similar or different in atypical contexts such as educational institutions or military organizations.

Leadership effectiveness is a basic requirement of effective organizations. The essence of effective organizations is effective decision-making wherein the effective decision is concerned with rational action to execute a plan. Effective decision-making requires both procedure and analysis, and translates itself into action. A limitation of the current investigation was the use of standardized cases and the evaluation of leader effectiveness at a discreet point in time. A longitudinal study could be designed to track a decision-making process within an organization over a period of time. The research design would have to make it possible to evaluate the decision-making processes, the behavior chosen, follower involvement, the skills employed by the leader, the outcome of the decision and its relative impact and contribution to organizational effectiveness. An understanding of the organizational context and problem situational analysis, either explicit or implicit, should assist in understanding the complexities of organizational decision-making. This requires analysis of real time organization decision-making behaviors and outcomes.

The current research investigated leader demographics in terms of job-related factors; it did not investigate leader personality variables. Personality does seem to be reemerging as an important factor in the leadership process. The relationships between personality and various aspects of leadership have received considerable attention in the past under the classification of the "trait approach" to leadership. Until recently, literature reviews generally concluded that no traits adequately distinguish leaders from non-leaders across situations thus serving to question the viability of such an approach (George, 1992). This is typified by Drucker's (1985) comments that effective leaders differ widely in their temperaments and their abilities, in what they do and how they do it, in their personalities, their knowledge, their interests -- in fact, in almost everything that distinguishes people. "All they have in common is the ability to get the right things done" (p. 22).

Recent research on personality and leadership, however, has taken some interesting turns comparing various personality traits and leadership perceptions. Bass (1990) suggests that it is reasonable to conclude that personality traits differentiate leaders from followers, successful from unsuccessful leaders and high level from low-level leaders. George (1992) concurs, suggesting that by ignoring individual differences, one neglects major variables relevant to an important human resource. Apparently, further research on the relationship of personality traits and leadership effectiveness is needed.

The current investigation indicates a strong leader preference for group process. This is consistent with Berger's (1992) thought that we have recently witnessed the emergence of the "new group process movement" whereby social psychologists are concerned with research and theory on interpersonal or group processes and structures.

Future research is required to develop theoretical, empirical and applied knowledge of interpersonal and interactor processes within groups. The Vroom-Yetton model lends itself to empirical investigations regarding the effectiveness of using specific leadership functions with different follower characteristics in a variety of organizational settings. Research programs have been studying exchange and power (Emerson, 1972), conflict and bargaining (Lowler, 1986), power structure in groups (Gray, et al.1976). This, of course, brings with it a host of new, relationship-based problems that are receiving considerable attention. How do we get people to work well together? How do we get teams working together quickly and efficiently? This type of research may result in other problem attributes and decisions rules that complement the Vroom-Yetton model.

A limitation of the current investigation was the use of a sample that did not include leaders who had knowledge and/or training in use of the Vroom-Yetton model. Effective use of the model is contingent upon the degree to which the user has the skill required to carry out successfully each of the five decision processes. Training efforts need to be concerned with when to use each decision process as well as how to use it effectively.

Conclusion

The fundamental question of the current investigation was: "What effect does a leader's decision-making behavior have on organization effectiveness? To this end, this study investigated the relationship between leader decision-making behavior, organizational variables, leader demographics, and leadership effectiveness variables at the organizational level of analysis.

The Vroom-Yetton Normative Model of Leadership was tested using two types of organizational leaders; government and non-government, and using both leader self reports and rater-rated data. The results of the study were inconclusive when comparing conformity to the Vroom-Yetton model to leadership effectiveness. It appears that different organizational beliefs and values may be more productive in some industries than others. Clearly, the composition and effects of organizational culture, micro-politics and structure are highly complex and all likely impact on organization decision-making. These contextual factors require a great deal more study to sort out the pieces and the relevant relationships.

The current investigation suggests that organizational context influences the relative effectiveness of leader behaviors. Although the Vroom-Yetton (1973) model prescribes various leadership styles under different conditions (situations), it does not prescribe when/how to use various leadership or decision-making functions under different organizational contexts. However, for the appropriate groups of leaders, the model may work to reduce errors made in current leader decision-making situations. The original intent of the Vroom-Yetton model was to encourage leaders to analytically assess a problem's attributes and rationally select a decision-making method. Complex organizations of today may not lend themselves to rational decision making.

Although this, as well as previous studies, have found empirical support for the model, the results do not provide consistent evidence of high practical application of the model. The findings of the research suggest that there are limitations to the applicability of the Vroom-

Yetton (1973) model; in itself the model does not seem to significantly effect leader effectiveness. The correlations, where significant, are generally low. There are clearly other contextual factors which will determine the ultimate effectiveness of the decision-making process. In all likelihood, a combination of approaches would be the most practical and effective. The Vroom-Yetton model could be used to provide prescriptions in the preplanning stage to determine the style to be used. The model cannot be used reliably without training in the attributes and decision rules. That is, there is a presupposition that the leader also has training and skills to use each decision-making behavior. Group process dynamics and decision-making heuristics would need to be used during the actual decision-making stage. In essence, the Vroom-Yetton model assists the leader to select a decision-making behavior, however, it does not contribute to the actual generation of the solution.

Though a leader may select the appropriate decision-making behavior to use in a particular situation, we do not know if the leader has the necessary skills (conflict management, etc.) to effectively manage the group. One might speculate that the Vroom-Yetton model is more likely to prove valid in leadership situations similar to the “typical” leadership situations from which the model was developed and with which it was subsequently validated. The exact parameters defining prerequisite skill sets cannot be specified from the present research, but may include the skill sets prescribed by Kepner Tregoe (1990).

In summary, the validity of the Vroom-Yetton model was partially supported and partially refuted. The model does describe leader behavior. However, the use of the model to prescribe appropriate decision-making methods cannot guarantee more effective decisions or leaders. Learning the skills required to use each of the decision-making behaviors may enable the leader to be more flexible in selecting an appropriate behavior. Leaders can, therefore, increase their effectiveness by enlarging their repertoire of leadership and group-processing skills and by honing their decision-making diagnostic skills.

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Appendix A:

Review of Vroom and Yetton (1973) Model Research

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Field & Howe 1990	Decision process	44 managers and subordinate pairs reported the situation faced and the decision process used in a recent decision.	Manager and subordinate ratings of quality, acceptance and overall effectiveness.	Evidence of the prescriptive validity of the Vroom-Yetton (1973) model was found with manager data but not subordinate data.	Field
Paul & Ebadi 1989	Leader decision making style	36 departments in a large retail department store and 216 fulltime salespersons. - Standardized problem sets. - Job description index. - Productivity measured for each employee by work sampling and computed by the percentage of time devoted to productive retailing activities.	Employee job satisfaction and productivity.	Leaders who used decision-making styles that agree with the Vroom-Yetton model (conformity with the feasible set), had more productive subordinates were more satisfied in some aspects of their jobs (work itself and their co-workers).	Field Lab
Ettling & Jago 1988	Conformity to normative prescriptions of Vroom-Yetton model using CI and CII styles. CI = consultative CII = interactive - Member conflict - Decision process	40 groups of 5 members each (students), using desert survival problem using task-based conflict.	Rating of decision acceptance and decision quality effectiveness criteria.	Support for Y-Y conflict rule, and suggest that subs are far more likely to accept following an interactive process. Strongly support the validity of the Yetton-Vroom Conflict Role. NOTE: All rules now supported. Validation evidence is now available to support the entire Vroom-Yetton model.	Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Bohnesch et al., 1987	Degree of PDM	- Real decisions by actual leaders. - Small groups examined each situation and provided: (1) The decision process employed by the Manager; (2) An analysis of the problem attributes present.		Small group judgements more accurate than single person's judgements in analyzing written description of standardized cases: 67 33 44 56 Support for some of the component rules.	Field
Leana 1987	#1 Degree of PDM - Participation (G1) and delegation (D1).	Managers (98)/standardize cases (24).	- Seven situational attributes of decision importance (quality), subordinate information, goal congruence problem structure, acceptance, leader information and importance of acceptance.	- Decision importance, subordinate information and subordinate goal congruence explained 23% the variance in manager's preference.	Lab
	#2 Use of Delegation (D1) and Participation (G1).	26 Insurance Claims Supervisors reported on their use of delegation (D1) and participation (G1) in overseeing the work of 122 Claims Adjustors in 19 branch offices.	- Problem attributes. - Decision importance. - Subordinate information. -Subordinate goal congruence. - Subordinate job capability. - Subordinate trustworthiness. - Workload. - Job satisfaction. - Performance.	- Confirmed the findings of Study #1 and also showed supervision workload as a significant predictor. - Objective measures of subordinate performance significantly correlated with the use of delegation but not with participation.	Field

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Crouch & Yetton 1987	Decision method; i.e., Managers preferred level of subordinate participation in decision making when conflict is present; i.e., legitimization of conflict. - Managers use of group decision method when conflict is present.	n = 89 Australian Managers + 358 subordinates. Vroom-Yetton standardized problem set. - 50 item behaviour inventory focusing on Manager's legitimization of conflict and subordinate performance.	- Manager behaviour. - Subordinate performance.	For Managers who are more highly skilled in conflict management, an increase in the use of group decision methods results in an increase in subordinate performance. The reverse is also true; less skilled Managers illicit a decrease in subordinate performance using group decision making methods; i.e., Managers with poor work conflict management skills incur performance losses if they attempt group discussion under conditions of conflict.	Lab
Liddell et al 1986	Degree of PDM	Students/group problems - role play	Measure and ratings of acceptance, quality, overall effectiveness	54 46 29 71	Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Tjosvold, Wedley, & Field, 1986	Degree of PDM Compliance with the Vroom-Yetton model, and degree of constructive controversy.	58 Managers - enrolled in an executive level MBA Prog. - described successful and unsuccessful decision making experiences by answering situational attribute questions and by indicating the extent those involved experienced constructive controversy.	Ratings of quality, acceptance, effectiveness, satisfaction and originality. - Successful vs. unsuccessful problem.	61 39 38 62 64 36 41 59 - Both the Vroom-Yetton of leadership and constructive controversy are significantly related to successful decision-making. - Conformity to recommended styles correlated with Manager's rated quality, acceptance, effectiveness and satisfaction. - A regression analysis indicated that constructive controversy accounted for 45% of the variance of decision success, whereas the Vroom-Yetton model accounted for 5%.	Field
Bottger, Hallein & Yetton	Degree of participation.	150 middle-level Managers from Australia, Africa, Papue-New Guinea and the Pacific islands (attending management education courses) completed the Vroom-Yetton problem set to measure participation levels on structured and unstructured problems, and situations of high and low leader power.	Task structure and leader power.	Mean levels of participation are independent of nationality. There is an instrumental effect of managerial education.	Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Heilman, Hornstein, Cage & Herschlag 1984	(1) Conformity to Y4 model.	N=25/standardized problems/volunteers. Respondents read a problem-solving story and a leader's behaviour; they then completed a questionnaire containing the dependent measures.	Decision process; ratings of competence, dynamism and likability; task-related and socio-emotional outcomes.	Participative behaviour was rated significantly more favourably than autocratic behaviour when participative d-m was prescribed by the Vroom-Yetton model.	Lab
	(2) Conformity to Y4 model.	N=72/standardized problems/volunteers responding from either a "boss" or "subordinate" perspective. Same design as Study #1.	Same as study 1.	Respondents cast as bosses evaluated the effectiveness of the leader and his actions in a manner consistent with the model. Respondents cast as subordinates evaluated the same effectiveness and actions in accordance with the model only when the situation was prescribed to be participative. Evaluation of leader behaviour may depend on the context in which the evaluation takes place.	Lab
Clement, 1983	Rules of Vroom-Yetton model of leadership.	42 profit and nonprofit Managers responded to 8 problems containing equal amounts of quality and acceptance requirements.	- Successful/unsuccessful decision styles, ratings of decision effectiveness, quality and acceptance.	- Profit and nonprofit Managers responded similarly. - Situational main effects accounted for 41% of variance in decision styles and individual differences accounting for 11%. - Only the acceptance priority rule contributed significantly to model validity.	Lab

REVIEW O. .ROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Erffmeyer, 1983	- Decision making style.	42 leaders from nursing, university administrators, businesses and fraternities/sorority reported five current decision-making situations evaluating decision process, and effectiveness, quality and acceptance of the decision. 3 - 5 subordinates also evaluated each decision.	Quality, acceptance and effectiveness of the decision.	Nurses and Managers supported the model, whereas university administrators and fraternity/sorority presidents showed no support for the validity of the model.	Field
Field, 1982	Degree of PDM	Students/group problems. 276 University business students were randomly formed into 4-person decision-making groups comprised of a leader, 2 subordinates and an observer. Each group attempted to solve 5 decision-making problems and was told to use different decision processes of the model for each decision.	Ratings of decision quality, acceptance, overall effectiveness.	Partial support for rules governing the Vroom-Yetton model. Decisions made with processes in the feasible set were significantly more effective than decisions with processes outside the feasible set. Of the 105 decisions in which the leaders behaviour agreed with the feasible set, 51 were effective, whereas only 31 of 87 decisions outside the feasible set were effective. Of the 7 rules underlying the model, 1 of 3 quality rules and 3 of 4 acceptance rules had effects as predicted.	Lab
Jago & Ettling 1982	Degree of PDM	Students/desert survival problem.	Ratings of decision quality, acceptance.	Support for conflict rule of Vroom-Yetton model.	Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Schweiger & Jago 1982	Myers-Briggs Type indicator.	MBA students (N=62). - Examined the relationship between the Myers-Briggs type indicator sensing-intuition and thinking-feeling scales the choice of autocratic vs. participative decision-making methods. - Standardize scenarios (30 sets) - Myers-Briggs Type indicator (Form G).	Mean level of participation.	Sensing types tend to be more participative than intuitive types. Situational factors may be more important than individual differences in influencing the choice of autocratic versus participative decision-making methods.	Lab/Field
Taylor, 1982	Degree of participation. - Preferred decision-making processes.	68 community college division chairpersons, 10 in a 4-year college and 29 in a university. - Vroom-Yetton problem sets.	Community college vs. four-year college vs. university division chairpersons. - Problem attributes.	Subjects usually selected consultative decision-process styles that encourage faculty participation. - Protects the quality of faculty acceptance and commitment to decision alternatives often was a threat.	Lab
Jago 1981	(1) Problem attributes hierarchical level. (2) Quality requirement hierarchical level.	Managers/standardized scenarios.	Degree of PDM.	More PDM at lower hierarchical level. Higher PDM when both quality requirement and hierarchical levels are low.	Lab
Jago & Vroom 1980	Degree of PDM	Managers n=96/successful and unsuccessful recalled problems (n=181).	Ratings of decision quality, acceptance, overall effectiveness.	Support for Vroom-Yetton model.	Field

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Louden (1980)	Degree of participation.	Data was collected from 33 school principals through two structured interviews and a questionnaire. Interviews collected descriptions of decision situations presently faced perceptions of the seven situational factors present. Second interviews collected on how each decision situation was resolved and judgement of outcome. 385 teachers participated through questionnaire.	Decision quality, acceptance and effectiveness satisfaction.	Administrative decision-making perceived as both successful and participative. No statistical significant relationship was found between Vroom-Yetton model and principal decision-making from principal data but in statistical sign but weak relationship from teacher data resulting primarily from increased involvement. Validity of model not confirmed. - Teachers more satisfied than perceived by principals.	Field
Margerison & Glube 1979	Degree of PDM	47 owner-operator, non-unionized dry cleaning franchise Managers and subordinates/standardized scenarios. Leaders were divided into two groups determined by the degree of agreement with the feasible set. Worker job satisfaction was defined as satisfaction with supervision as measured by the Job Description Index. Productivity measured by ratio of sales revenue to direct material plus total payroll.	Unit performance, subordinate satisfaction with supervisor.	Higher productivity, subordinate satisfaction when agreement with Vroom-Yetton model.	Field Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Jago 1978	Hierarchical level, problem attributes.	Managers/standardized scenarios varying hierarchical levels.	Degree of PDM.	Variance explained by attributes less when hierarchical level controlled.	Lab
Jago & Vroom 1978	Research methodology	Managers/standardized scenarios and recalled problems.	Agreement between recalled and scenario behaviour.	Scenario behaviour and recalled behaviour matched only for successful problems.	Lab and Field
Vroom & Jago 1978	Degree of PDM	Managers/successful and unsuccessful recalled problems.	Ratings of decision quality, acceptance, overall effectiveness.	68% of successful and 22% of unsuccessful decisions in agreement with Vroom-Yetton model; main effect for PDM on quality and acceptance; goal congruence and conflict rules not supported. 68 32 22 78	Field
Zimmer 1978	Degree of PDM	District Managers/successful and unsuccessful recalled problems.	Ratings of component rules.	67 33 41 59	Field

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Hill, 1977	Conformity to the Vroom-Yetton Model; i.e., leadership style.	46 Managers from two manufacturing companies. - Case studies. - Minnesota satisfaction questionnaire. - Personality research form. - Performance evaluations.	- Personality characteristics. - Subordinate satisfaction with the subject's leadership. - Performance	- Significant amount of variance in selection of decision styles attributable to both individual subject and situational differences, with situational differences more important accounting for 45 percent of the variance. - Contingency assumptions of model supported though not all problem attributes received equal consideration. - Conformity to the model was high. - Basic descriptive perspective of model were supported; i.e., rules prescribing relationship between problem attributes and decision style. - No significant relationships were found among the personality variables and Vroom-Yetton indices. - Marginal significant relation between Vroom-Yetton indices and satisfaction/performance.	Lab
Hill & Schmitt 1977	Situation attributes individual differences.	Managers (n=33) - Hypothetical problem.	DPM; i.e., mean participation and conformity YYLMC and % agreement.	Both subjects and situation account for significant portions of variance with situations accounting for about 4.5 times as much variance as subjects.	Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Jago & Vroom 1977	Hierarchical level.	Managers and subordinates/standardized scenarios.	Degree of PDM	More PDM at higher hierarchical level.	Lab
Steers, 1977	Personality, sex.	103 subjects from various work organizations responded to Vroom-Yetton problem sets and a Personality Research Form.	PDM	Females are more participative than males. Situational effects are more important in determining participativeness than individual effects, regardless of sex.	Lab
Jago & Vroom 1975	Information source.	Managers and subordinates/standardized scenarios.	Agreement between manager and subordinate reports of degree of PDM.	Little agreement.	Lab
Vroom & Jago 1974	Problem attributes.	Managers/standardized scenarios.	Degree of PDM.	Over 65% agreement with Vroom-Yetton rules.	Lab
Vroom & Jago 1974	Problem attributes; decision quality requirement, leader information, problem structure, importance of acceptance, probability of acceptance, goal congruence, subordinate information.	Managers/standardized scenarios.	Degree of PDM.	Importance of acceptance, goal congruence, subordinate information positively related to PDM; quality, leader information, problem structure negatively related to PDM.	Lab

REVIEW OF VROOM & YETTON MODEL RESEARCH

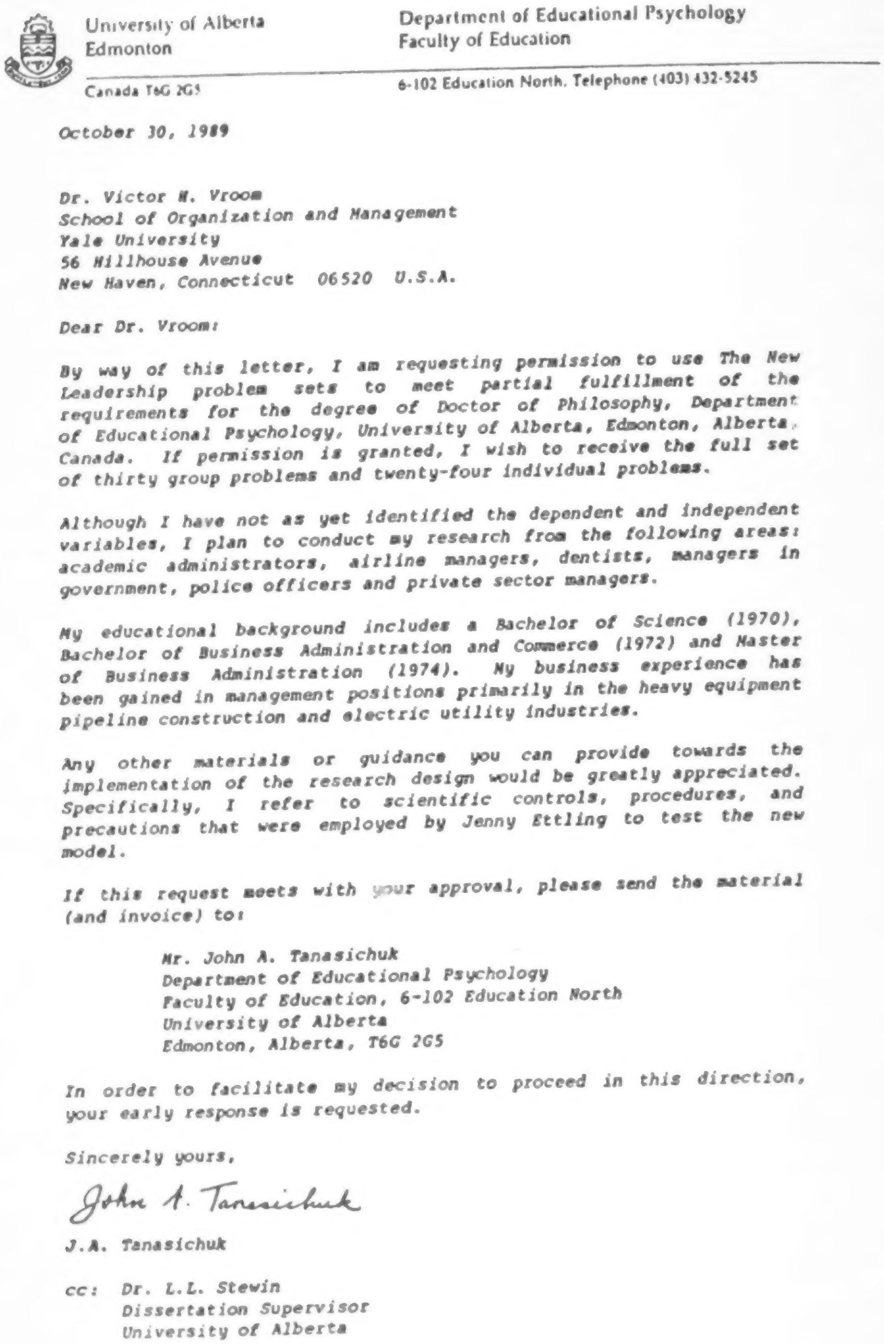
Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
Vroom & Yetton, 1973	#1 - Decision making style.	385 managers from over 100 different firms indicated the percentage of occasions each decision process was used.	Frequency of use of each decision style.	- 98.7% of managers employed each of the five decision processes some proportion of the time. - There is variance in behaviour among Managers.	Field
	#2a - Decision making style.	597 managers rank ordered the frequency with which they used each decision process in their job.	Rank order of use of each decision style.	- Using the Goode and Coombe Algorithms, numerical assignments were obtained for a metric scale whereby A1=0, A11=625, C1=5.0, C11=8.125 and C11 = 10.0.	Field
	#2b - Decision making style.	74 masters' students plotted on a scale an estimate of degree to which they would provide an opportunity for subordinates to influence decisions and indicated the scale value between zero and 100 for the intermediary processes.	Degree of subordinate influence.	- Both metric and numerical methods yield similar and corresponding results to the Coombe method.	Lab
	#2c - Decision making style.	207 managers rank ordered the syles in accordance with the frequency used by superiors.	Rank order of use of each decision style.	- Managers' superiors were typically seen as more autocratic than the way managers see themselves.	Field

REVIEW OF VROOM & YETTON MODEL RESEARCH

Study	*Independent Variables*	*Samples/Task*	*Dependent Variables*	*Results/Outcomes Comments*	*Research Environment*
	#3 - Situational variables. - Individual differences in leadership style.	342 managers provided written descriptions of recent problems and decision process used. - Also rank ordered decision process by frequency of use.	Decision making style.	- Situational differences contributed more to variance than individual differences. - Acceptance of decision by subordinates and quality requirement seen as important.	Field
	#4 - Situational variables. - Individual differences in leadership style.	268 managers provided a written description of a written problem, the decision process used answered a set of eight situational attributes. - Rank ordered decision process by frequency of use.	Decision making style.	- Situational differences contributed more to variance than individual differences. - Acceptance of decision by subordinates and quality requirement seen as important.	Field

Appendix B:

Correspondence with Dr. V.H. Vroom



University of Alberta
Edmonton
Canada T6G 2G5

Department of Educational Psychology
Faculty of Education
6-102 Education North, Telephone (403) 432-5245

October 30, 1989

Dr. Victor H. Vroom
School of Organization and Management
Yale University
56 Hillhouse Avenue
New Haven, Connecticut 06520 U.S.A.

Dear Dr. Vroom:

By way of this letter, I am requesting permission to use The New Leadership problem sets to meet partial fulfillment of the requirements for the degree of Doctor of Philosophy, Department of Educational Psychology, University of Alberta, Edmonton, Alberta, Canada. If permission is granted, I wish to receive the full set of thirty group problems and twenty-four individual problems.

Although I have not as yet identified the dependent and independent variables, I plan to conduct my research from the following areas: academic administrators, airline managers, dentists, managers in government, police officers and private sector managers.

My educational background includes a Bachelor of Science (1970), Bachelor of Business Administration and Commerce (1972) and Master of Business Administration (1974). My business experience has been gained in management positions primarily in the heavy equipment pipeline construction and electric utility industries.

Any other materials or guidance you can provide towards the implementation of the research design would be greatly appreciated. Specifically, I refer to scientific controls, procedures, and precautions that were employed by Jenny Ettling to test the new model.

If this request meets with your approval, please send the material (and invoice) to:

Mr. John A. Tanasichuk
Department of Educational Psychology
Faculty of Education, 6-102 Education North
University of Alberta
Edmonton, Alberta, T6G 2G5

In order to facilitate my decision to proceed in this direction, your early response is requested.

Sincerely yours,

John A. Tanasichuk

J.A. Tanasichuk

cc: Dr. L.L. Stewin
Dissertation Supervisor
University of Alberta

Yale School of Organization and Management
Box 1A New Haven Connecticut 06520

Victor H. Vroom, *John G. Searle*
Professor of Organization and Management;
Professor of Psychology

November 14, 1989

Mr. J. A. Tanasichuk
Department of Educational Psychology
Faculty of Education, 6-102 Education North
University of Alberta
Edmonton, Alberta, Canada T6G 2G5

Dear Mr. Tanasichuk:

I am afraid that, at this time, I cannot provide you with the problem sets that you request. In 1971 Phil Yetton and I licensed the Vroom-Yetton model to Kepner Tregoe and that firm retains rights of approval for requests such as yours. They have routinely granted such requests but would insist on a more complete description of your research design. Their address is Research Road, P.O. Box 704, Princeton, N.J. 08540.

I do recognize that your request deals specifically with the materials developed by Vroom and Jago. Ownership of these by Kepner Tregoe is a matter that is currently before the courts and your request could not have come at a more difficult time.

Sincerely,

Appendix C:

Letter of Agreement, Kepner Tregoe

**KEPNER
TREGOE**

Managing Involvement - Kepner-Tregoe Associates Limited

I agree to only use the Kepner-Tregoe's proprietary Managing Involvement materials for purposes of developing my doctorial thesis. I will not reproduce the participant materials to conduct commercial programs for personal revenue gain.

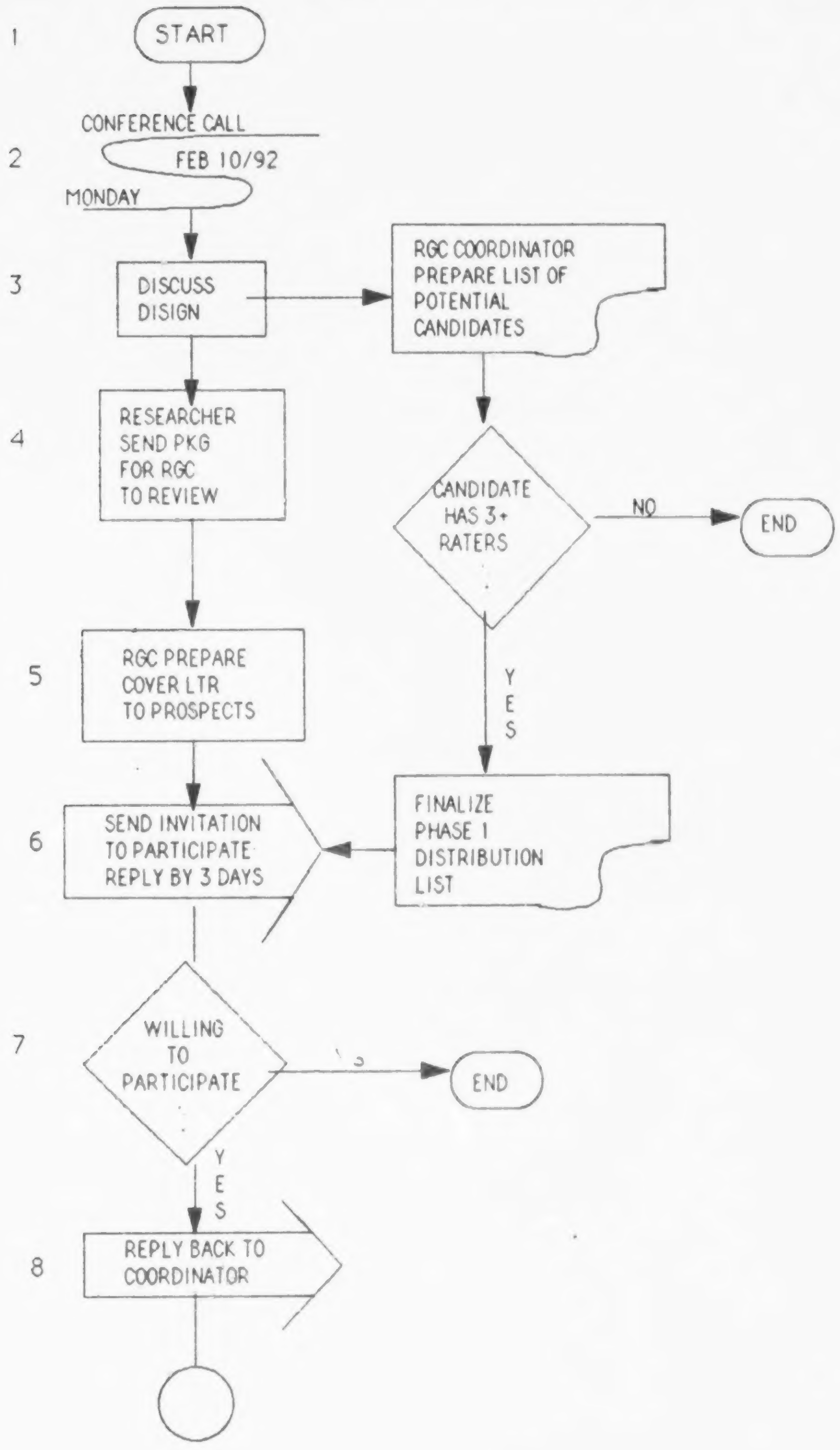
Ron E. Bullock
Ron E. Bullock
Vice President, Kepner-Tregoe

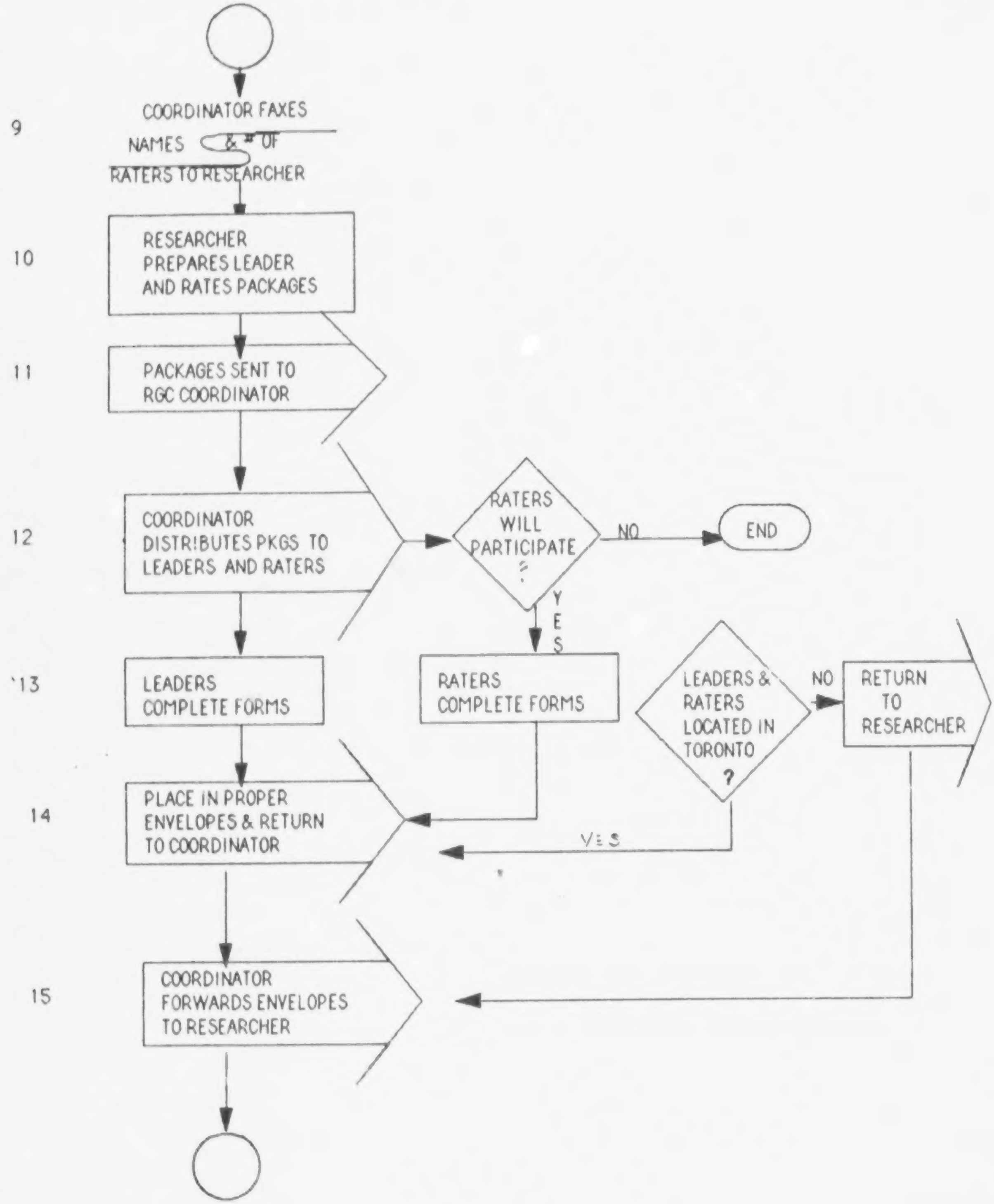
John A. Tanasichuk
John Tanasishuk

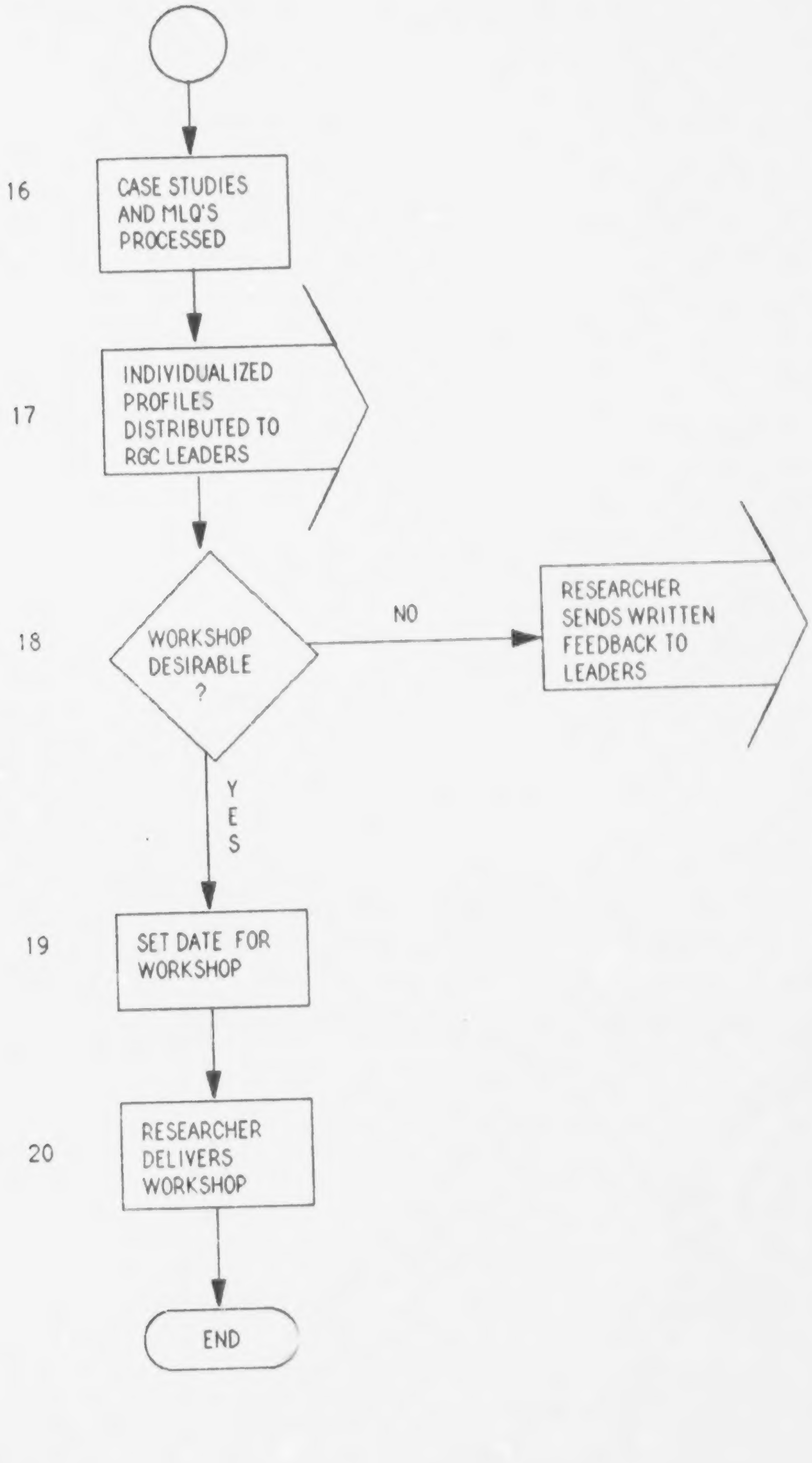
January 22, 1990
Date

Appendix D:

Research Process Map


1
START
CONFERENCE CALL
2
FEB 10/92
MONDAY
3
DISCUSS DISIGN
RGC COORDINATOR PREPARE LIST OF POTENTIAL CANDIDATES
4
RESEARCHER SEND PKG FOR RGC TO REVIEW
CANDIDATE HAS 3+ RATERS
NO
END
YES
5
RGC PREPARE COVER LTR TO PROSPECTS
6
SEND INVITATION TO PARTICIPATE REPLY BY 3 DAYS
FINALIZE PHASE 1 DISTRIBUTION LIST
7
WILLING TO PARTICIPATE
END
YES
8
REPLY BACK TO COORDINATOR


9
COORDINATOR FAXES NAMES & # OF RATERS TO RESEARCHER
10
RESEARCHER PREPARES LEADER AND RATES PACKAGES
11
PACKAGES SENT TO RGC COORDINATOR
12
COORDINATOR DISTRIBUTES PKGS TO LEADERS AND RATERS
RATERS WILL PARTICIPATE ?
NO
END
YES
13
LEADERS COMPLETE FORMS
RATERS COMPLETE FORMS
LEADERS & RATERS LOCATED IN TORONTO ?
NO
RETURN TO RESEARCHER
14
PLACE IN PROPER ENVELOPES & RETURN TO COORDINATOR
YES
15
COORDINATOR FORWARDS ENVELOPES TO RESEARCHER


16
CASE STUDIES AND MLQ'S PROCESSED
17
INDIVIDUALIZED PROFILES DISTRIBUTED TO RGC LEADERS
18
WORKSHOP DESIRABLE ?
NO
RESEARCHER SENDS WRITTEN FEEDBACK TO LEADERS
YES
19
SET DATE FOR WORKSHOP
20
RESEARCHER DELIVERS WORKSHOP
END

Appendix E:

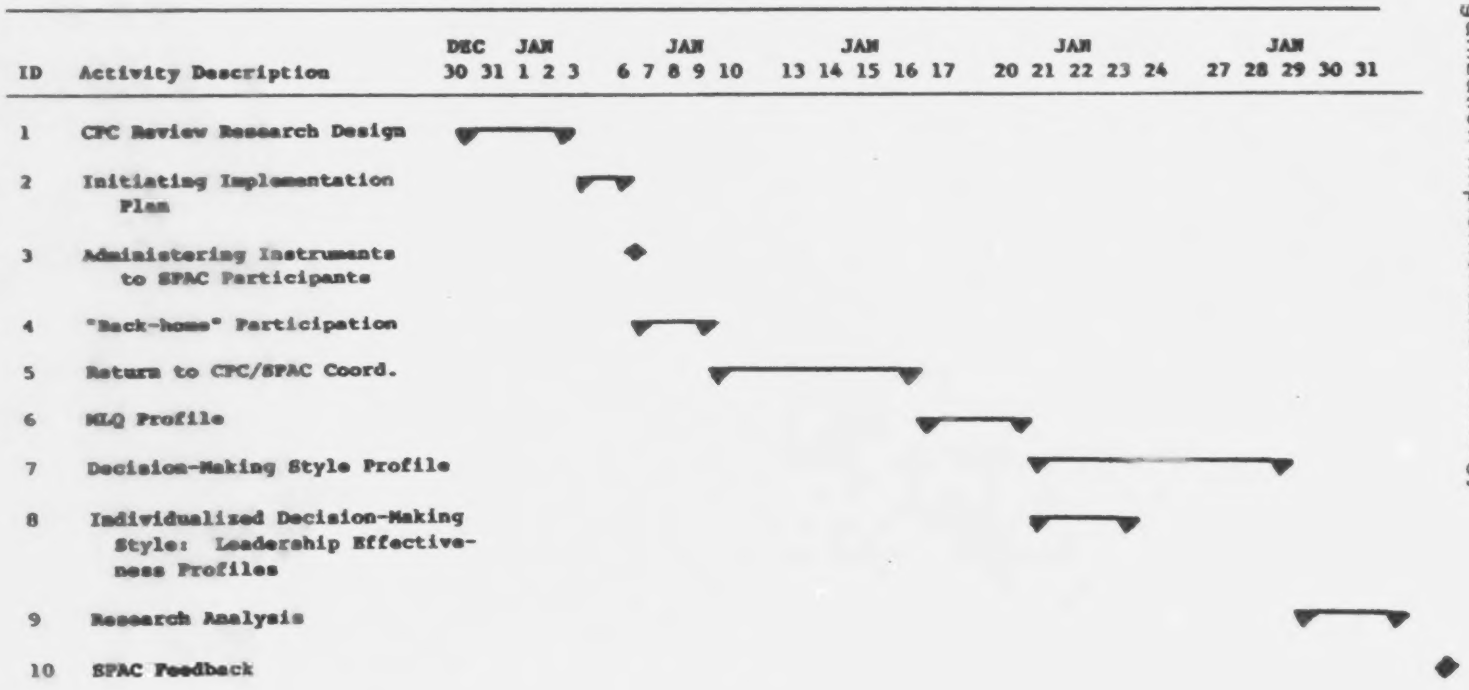
Organization Implementation Strategy

CANADIAN POLICE COLLEGE LEADERSHIP RESEARCH IMPLEMENTATION SCHEDULE

DECEMBER 23, 1991 - FEB. 6, 1992

" PROPOSAL "

SCHEDULE #1



Appendix F:

Letter: Invitation to Parricipate in Research

University of Alberta
Edmonton
Canada T6G 2G5

Department of Educational Psychology
Faculty of Education
6-102 Education North, Telephone (403) 492-5245
Fax (403) 492-1318

BANFF: October, 1991

LEADERSHIP EFFECTIVENESS RESEARCH STUDY

Dear HRD Canada Conference Participant:

As a conference participant, your organization is invited to participate in a study designed to examine the relationship of leadership decision making to leadership effectiveness. The purpose of this research is to determine if a leader's decision-making style can be used as a tool to increase leader effectiveness. This is based on the premise that leadership skills, specifically decision-making processes, can be taught and/or acquired on the job.

Leadership training is more effective if areas of strength and weakness can be pinpointed. This research should lead to better differentiation of ineffective and effective leader behaviors. Participating in this research will provide your organization with a snapshot of its leadership profile.

Leadership effectiveness, based on leader self-ratings as well as on subordinates/followers' ratings, will be measured using a Multifactor Leadership Questionnaire (MLQ). Participating institutions/organizations will be requested to purchase the MLQ packages at a cost of approximately $45.00 per leader. This includes a computer generated report producing a detailed profile. Total time required by each leader is approximately sixty minutes and twenty minutes for each subordinate/follower.

If you have an interest in participating in this important study and would like further information, please contact the researcher, John Tanasichuk, at 403--435-6521. This research is being conducted to complete a doctoral thesis for the Faculty of Educational Psychology, University of Alberta.

Sincerely yours,

John A. Tanasichuk
B.Sc., B.Comm., MBA
PHD Candidate

Appendix G:

Leader Return Envelope

Indian and Northern
Affairs Canada
Manitoba Region

Leadership Effectiveness

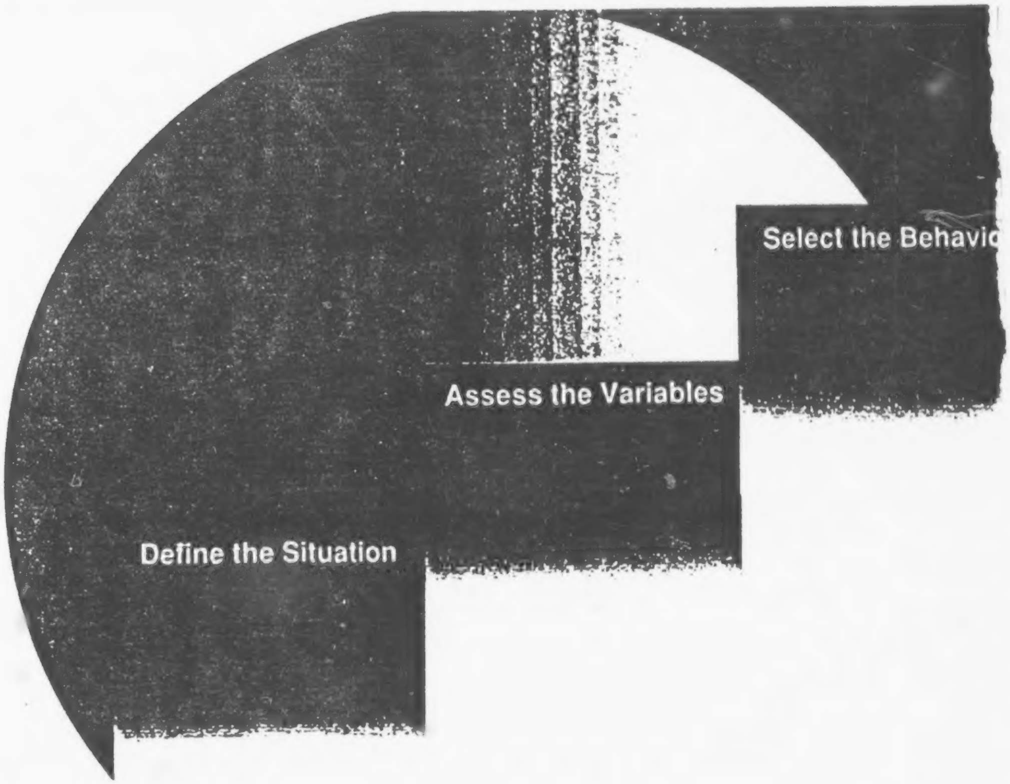
Research Study

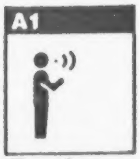
RETURN TO: Don Cooke

Contents: Consent Form &
Case Study Booklet

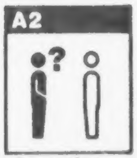
Appendix H:

Managing Involvement: Three Steps

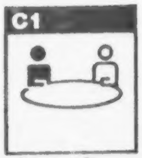

Select the Behavi
Assess the Variables
Define the Situation



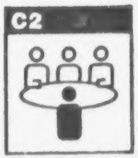
Resolve Alone



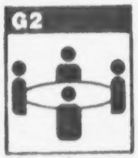
Question Individuals



Consult Individuals



Consult Group



Resolve as Group

Appendix I:

Involvement Process

Involvement Process

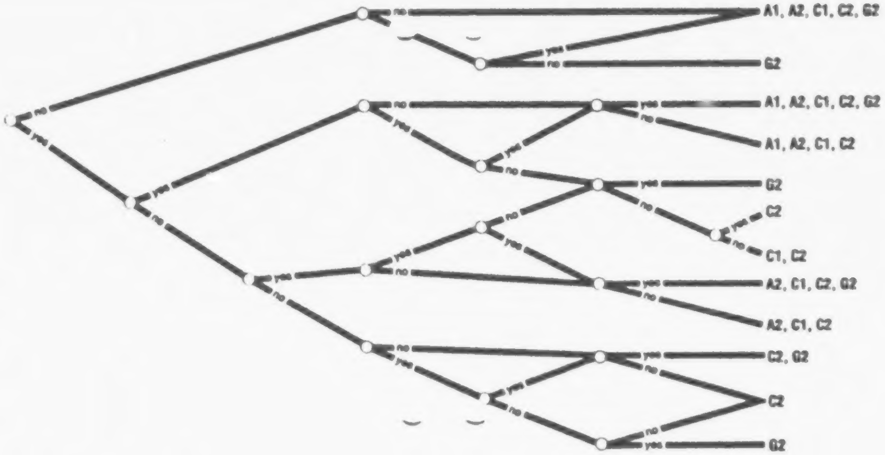
1 Define the Situation: ____________________

____

2 Assess the Variables:

Superior Solution	**Information**	**Structure**	**Commitment**	**Commitment without Participation**	**Goal Agreement**	**Conflict About Alternatives**
Does it make a big difference which course of action is adopted?	Do you now have enough information to find a superior solution?	Do you know exactly what information is missing and how to get it?	Is the commitment of others critical to effective implementation?	Will they commit to a solution made by you without their active participation?	Is there general agreement about goals between the others and the organization in this situation?	Is there likely to be conflict about alternatives within the group?
yes ☐ no ☐	yes ☐ no ☐	yes ☐ no ☐	yes ☐ no ☐	yes ☐ no ☐	yes ☐ no ☐	yes ☐ no ☐

3 Select the Behaviors:
Identify effective behaviors



Make final choice

A1
A2
C1
C2
G2

Resolve Alone ☐

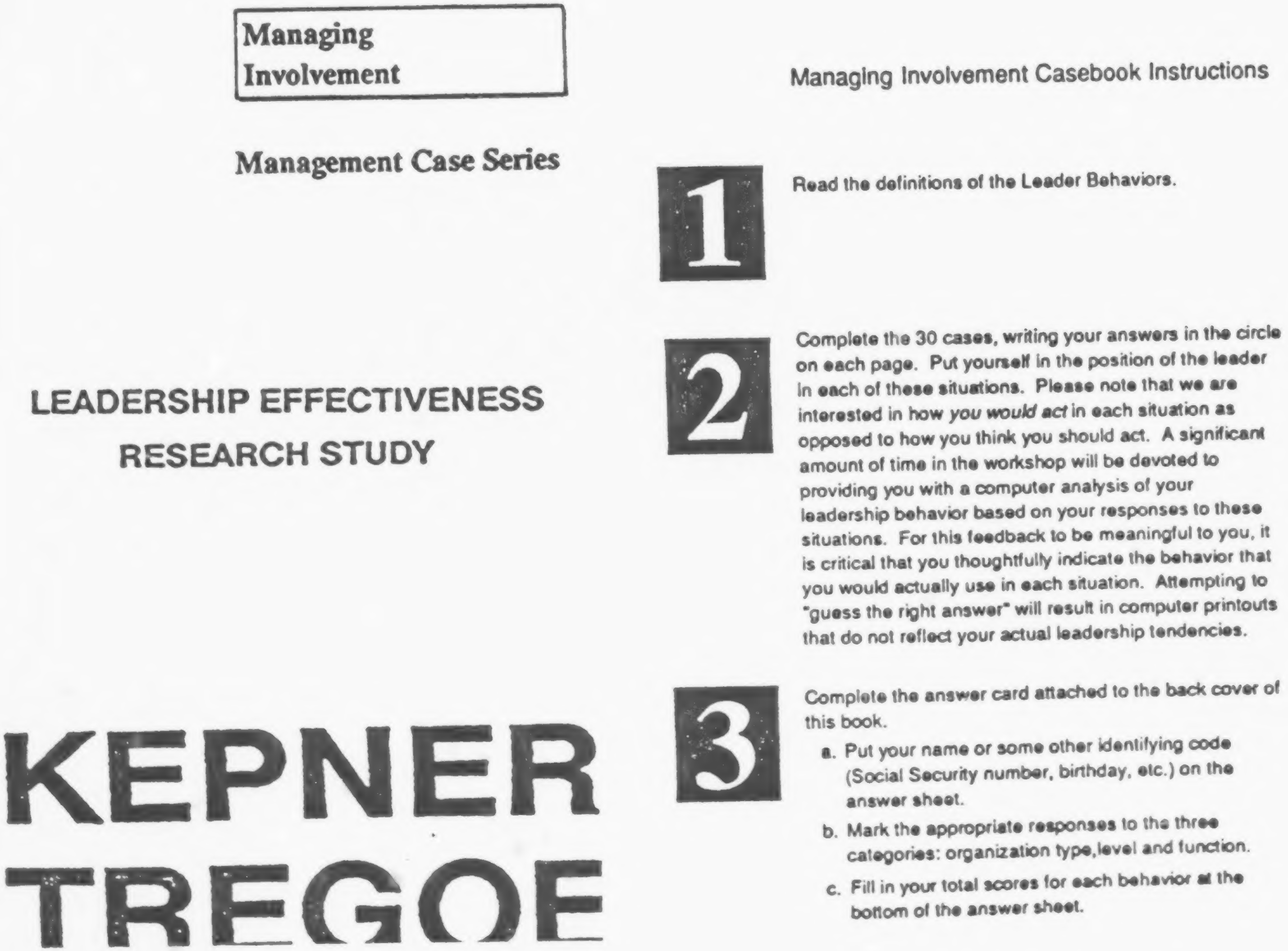
Question Individuals ☐

Consult Individuals ☐

Consult Group ☐

Resolve as Group ☐

Appendix J:
Management Case Series



Managing
Involvement

Management Case Series

LEADERSHIP EFFECTIVENESS
RESEARCH STUDY

KEPNER
TREGOE

Managing Involvement Casebook Instructions

1 Read the definitions of the Leader Behaviors.

2 Complete the 30 cases, writing your answers in the circle on each page. Put yourself in the position of the leader in each of these situations. Please note that we are interested in how *you would act* in each situation as opposed to how you think you should act. A significant amount of time in the workshop will be devoted to providing you with a computer analysis of your leadership behavior based on your responses to these situations. For this feedback to be meaningful to you, it is critical that you thoughtfully indicate the behavior that you would actually use in each situation. Attempting to "guess the right answer" will result in computer printouts that do not reflect your actual leadership tendencies.

3 Complete the answer card attached to the back cover of this book.

- a. Put your name or some other identifying code (Social Security number, birthday, etc.) on the answer sheet.
- b. Mark the appropriate responses to the three categories: organization type,level and function.
- c. Fill in your total scores for each behavior at the bottom of the answer sheet.

Case 1

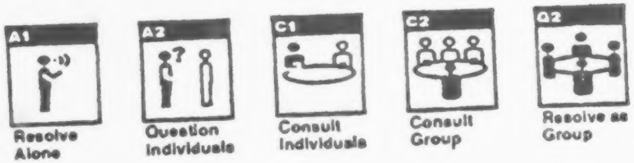
1 ○ answer

You supervise a small research department in a large organization. The three researchers who report to you tend to pursue projects that interest them, but are of little practical value to the organization. One current project is producing little useful data.

One of the operating departments has recently proposed two new, practical projects. Your research team would be ideal for these projects, but neither project is of scientific interest. Their current project is of great interest to all three researchers.

Your research team works well together and has high morale. You are concerned that forcing them to work on the two new projects might have a long-term impact on their productivity. Although the team could work on more than one project at a time, each project needs the combined skills of all three researchers.

You know that a decision that satisfies one team member will probably satisfy all three. In two weeks you must let the operating department know what resources, if any, are available for the proposed projects.

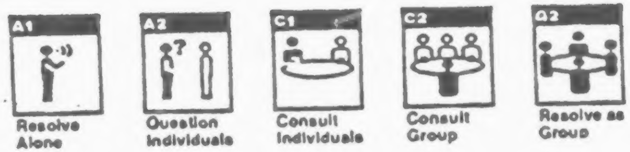

A1
Resolve Alone
A2
Question Individuals
C1
Consult Individuals
C2
Consult Group
G2
Resolve as Group

Case 30

You are the buyer of women's clothing for a chain of department stores. You have seen the new lines and have the latest sales forecasts from marketing. You must now decide on the purchases for the next quarter.

The department managers control display, so you need their cooperation. The managers can ruin sales performance by hiding new stock or providing poor display positions.

Your performance has been consistently high. You are recognized as having a real flair for predicting fashion trends. The department managers see you as an expert in your field. Both you and the department managers are evaluated on quarterly sales volume. They are counting on you to repeat last year's success.


A1
Resolve Alone
A2
Question Individuals
C1
Consult Individuals
C2
Consult Group
G2
Resolve as Group

Appendix K:
Information Letter to Leader

University of Alberta
Edmonton
Canada T6G 2G5

Department of Educational Psychology
Faculty of Education
6-102 Education North, Telephone (403) 492-5245
Fax (403) 492-1318

June 8, 1992

Human Resource Services Division
Alberta Health
10025 - Jasper Avenue, Box 1360
EDMONTON, Alberta
T5J 2N3

Dear

RE: LEADERSHIP EFFECTIVENESS RESEARCH STUDY

You are invited to participate in a study on leadership. The purpose of this research is to determine how decision-making style is related to a leader's effectiveness.

This research will involve leaders and subordinates from various organizations. A leader in this study is defined as an individual who has responsibility directing and coordinating subordinates. In the first phase of the study, the leaders will respond to thirty typical decision problems to determine the decision-making process they would use. Then the leaders and their participating subordinates will complete a questionnaire (Multifactor Leadership Questionnaire) which assesses leadership effectiveness. Leader effectiveness will be measured in terms of: (i) individual/organizational effectiveness, (ii) follower satisfaction with leader, and (iii) amount of extra effort by subordinate (follower). All responses will be anonymous and confidential.

The ratings of the subordinates will be grouped to form a snapshot of your leader's leadership profile. It will be impossible to identify individuals with their responses.

To reciprocate for your participation, you will receive an individualized 30-page computer-generated leadership profile. Benefits for participating are described in an attached sheet.

To protect confidentially, all forms will be destroyed after responses have been tabulated. Only the research personnel working on the project will see the individual responses. Participation in the study is voluntary.

P.T.O.

A Research Coordinator has been appointed by your organization to ensure that the research is carried out accordingly to the approved protocol. The Coordinator will collect the questionnaires on behalf of the researcher but will not see the responses.

Thank you in advance for your participation in this important research study. Successful organizations are successful because of their leaders and employees. Your participation is greatly appreciated.

PROMPTNESS IS IMPORTANT. Please return your completed MLQ to the designated Coordinator.

If you have any questions or concerns about the research, please call the researcher, John Tanasichuk, at 403--435-6521.

Yours truly,

J. Tanasichuk

John A. Tanasichuk
B.Sc., B.Comm., MBA
Ph.D. Candidate

Appendix L:

Benefits Summary

LEADERSHIP EFFECTIVENESS RESEARCH STUDY

Benefits Summary

The following delineates some of the potential benefits to be gained by the leaders who participate in the research study:

1. Each leader will receive an individualized 30-page computer generated leadership profile providing an in-depth summary of leadership decision-making styles and rater perceived effectiveness. The profile will enable the leader to identify personal strengths, weaknesses and areas of potential improvement.

2. Leaders will learn how and when to involve subordinates. This enables leaders to modify and/or match their decision-making style and leadership behaviour to complement the needs of the situation.

3. Leaders will become exposed to the skill sets necessary to effectively use the varying decision-making styles, developing personal mastery.

4. Leaders will learn the characteristics and behaviours describing successful leaders.

This prescriptive tool allows leaders to increase their own overall effectiveness through self improvement and the development of others. As well as clarification of goals and expectations, team building possibilities exist through group discussions of the results.

Appendix M:

Instructions to Leaders

INSTRUCTIONS TO LEADERS

INFORMED CONSENT #1

Please read the Informed Consent #1, authorize your consent, and return it with the case-series booklet cover to the coordinator in the Brown Consent Envelope. If you do not wish to participate, please return the decision problems and the blank MLQ Rater Form to the coordinator in the envelopes provided. If you change your mind about being involved in the study after completing the decision problems and MLQ, draw an "X" across the front of the MLQ and your responses will not be included in the study. Return the sealed envelope.

MANAGING INVOLVEMENT CASE SERIES

Complete the 30 cases, writing your answers in the circle on each page. Put yourself in the position of the leader in each of these situations. Please note that we are interested in how you would act in each situation as opposed to how you think you should act. Complete the answer card on the back cover of the booklet and mark the appropriate responses to the individual and organizational data requested. Remove the cover from the insert and return it to the coordinator in the designated BROWN ENVELOPE. You may keep the case studies insert for reference to assist you in the understanding of your personalized feedback report.

MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ)

The front page will already be filled out. Please read instructions on page two. Answer all questions in the answer sheet with the No.2 pencil provided. Read the descriptive statements and mark the response which best applies to you.

Even though the decision problem and MLQ data are to be confidential, please be sure to check that the organization name and your name are correct so that all MLQ Questionnaires (both the leader's self rating and the subordinate rate forms) reflect the same leader and can be matched to the appropriate decision problems. Please place the MLQ Self-Rater Form in the special WHITE ENVELOPE, seal it, and return it to your coordinator.

PLEASE RETURN THE PENCILS IN THE BROWN ENVELOPE.

Appendix N:

Informed Consent #1: Leader

INFORMED CONSENT #1

LEADER

Title of Research:	Conformity to the Vroom-Yetton Normative Model of Leadership and Leadership Effectiveness
Researcher:	John A. Tanasichuk PhD Candidate Educational Psychology University of Alberta Edmonton, Alberta Phone: 403--435-6521

Purpose of Study:

The purpose of this research is to determine how decision-making style is related to a leader's effectiveness.

Procedure:

If you agree to take part in the study, you will be asked to read thirty typical situations in which leaders must make a decision. You will then pick, from a list of responses, the ones that are most like the decisions you would make.

You will also complete a Multifactor Leadership Questionnaire (MLQ). The MLQ provides a report of a leader's effectiveness and style based on self-ratings and rating by others. You will determine, from a list of descriptive statements, how frequently it fits you. As well, your subordinates will be invited to take part in the study. They will fill out on MLQ regarding your leadership.

Risks:

This study does not pose any risk to you or your subordinates. Your participation is completely voluntary. If you decide not to take part, it will not affect your employment status in any way. Your responses are anonymous and confidential. It will be impossible to identify individuals by their responses. Results of the study may be published, used in later studies, or used for educational purposes but your name and the name of your organization will be kept confidential. Only you will have access to your personal profile.

A coordinator has been appointed by your organization to ensure that the study is carried out according to the approved plan. The coordinator will collect the questionnaires on behalf of the researcher, but will not see the responses. Only the research personnel will see the completed questionnaires. All questionnaires will be destroyed after they have been tabulated.

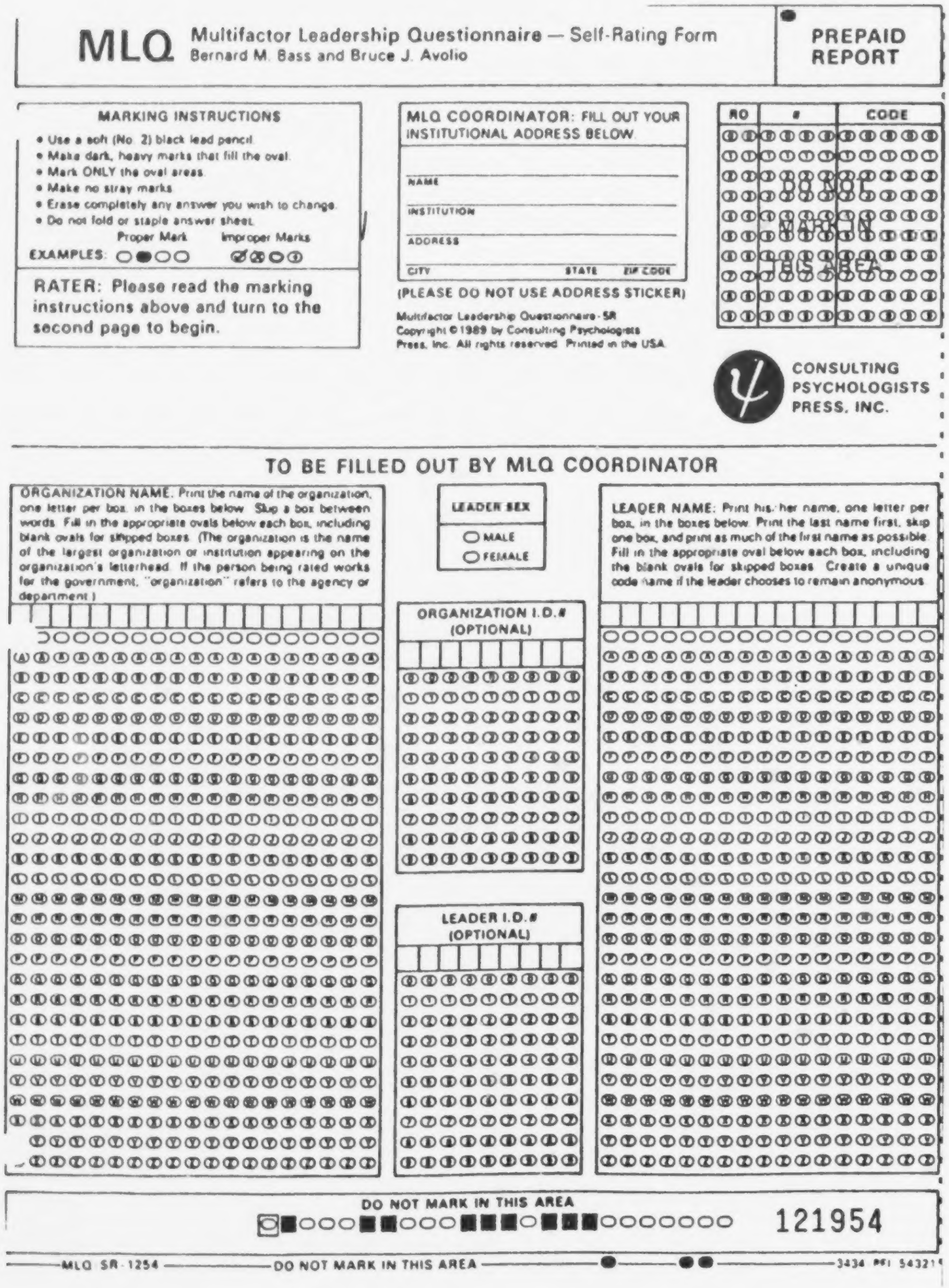
Signature of Leader

Date

PLEASE RETURN THE SIGNED CONSENT AND THE COMPLETED CASE ANSWER CARD IN THE BROWN ENVELOPE. PLEASE RETURN THE MLQ SELF-RATING FORM IN THE WHITE RATER ENVELOPE.

Appendix O:

Multifactor Leadership Questionnaire-Leader Form



MLQ Multifactor Leadership Questionnaire — Self-Rating Form
Bernard M. Bass and Bruce J. Avolio

PREPAID REPORT

MARKING INSTRUCTIONS

- Use a soft (No. 2) black lead pencil.
- Make dark, heavy marks that fill the oval.
- Mark ONLY the oval areas.
- Make no stray marks.
- Erase completely any answer you wish to change.
- Do not fold or staple answer sheet.

Proper Mark Improper Marks
EXAMPLES: ○●○○

RATER: Please read the marking instructions above and turn to the second page to begin.

MLQ COORDINATOR: FILL OUT YOUR INSTITUTIONAL ADDRESS BELOW.

NAME
INSTITUTION
ADDRESS
CITY STATE ZIP CODE

(PLEASE DO NOT USE ADDRESS STICKER)

Multifactor Leadership Questionnaire-SR
Copyright © 1989 by Consulting Psychologists Press, Inc. All rights reserved. Printed in the USA.

RO # CODE

DO NOT MARK IN THIS AREA

CONSULTING
PSYCHOLOGISTS
PRESS, INC.

TO BE FILLED OUT BY MLQ COORDINATOR

ORGANIZATION NAME: Print the name of the organization, one letter per box, in the boxes below. Skip a box between words. Fill in the appropriate ovals below each box, including blank ovals for skipped boxes. (The organization is the name of the largest organization or institution appearing on the organization's letterhead. If the person being rated works for the government, "organization" refers to the agency or department.)

LEADER SEX
○ MALE
○ FEMALE

ORGANIZATION I.D.#
(OPTIONAL)

LEADER I.D.#
(OPTIONAL)

LEADER NAME: Print his/her name, one letter per box, in the boxes below. Print the last name first, skip one box, and print as much of the first name as possible. Fill in the appropriate oval below each box, including the blank ovals for skipped boxes. Create a unique code name if the leader chooses to remain anonymous.

DO NOT MARK IN THIS AREA

121954

MLQ SR-1254 DO NOT MARK IN THIS AREA 3434 PFI 54321

This is a questionnaire to provide a description of you. Answer all questions on the answer sheet with a No. 2 pencil. When the item is irrelevant or does not apply, or where you are uncertain or don't know, leave the answer blank. Make no more than one mark for each question.

Directions: Listed below are descriptive statements. For each statement, we would like you to judge how frequently it fits you.

Example: *"They can discuss their problems with me."*

They means those below you in the organization who report directly to you — your immediate subordinates or supervisees — or those at the same level in your organization — your co-workers or colleagues.

If this is true of you most of the time or "frequently, if not always," then mark the number 4; "fairly often," mark number 3; "sometimes," mark number 2; "once in awhile," mark number 1; "not at all," mark 0.

Mark the statement below which applies best:
○ The people I'm referring to report directly to me.
○ The people I'm referring to are my peers or co-workers.
○ I report to the people I am referring to.
○ The people I'm referring to are clients, customers, or constituents of mine.
○ Other ________________________________

Use this key for the five possible responses to items 71–74.

0	1	2	3	4
Not effective	**Only slightly effective**	**Effective**	**Very effective**	**Extremely effective**

⓪①②③④ 71. The overall effectiveness of the group made up of yourself, your supervisees, and/or your co-workers can be classified as __________.
⓪①②③④ 72. How effective are you in representing your group to higher authority?
⓪①②③④ 73. How effective are you in meeting the job-related needs of supervisees and/or co-workers?
⓪①②③④ 74. How effective are you in meeting the requirements of the organization?

75. In all, how satisfied do you think your supervisees and/or co-workers are with you as a leader?
⓪ Very dissatisfied
① Somewhat dissatisfied
② Neither satisfied nor dissatisfied
③ Fairly satisfied
④ Very satisfied

76. In all, how satisfied are you with the methods of leadership you use to get your group's job done?
⓪ Very dissatisfied
① Somewhat dissatisfied
② Neither satisfied nor dissatisfied
③ Fairly satisfied
④ Very satisfied

77. My position is __________.
① First-level (lowest level of supervision or equivalent)
② Second-level (supervises first-level)
③ Third-level
④ Fourth-level
⑤ Fifth-level or higher
⑥ Not applicable

78. Of the alternatives below, which is the highest level existing in your organization?
① First-level (lowest level of supervision or equivalent)
② Second-level (supervises first-level)
③ Third-level
④ Fourth-level
⑤ Fifth-level or higher
⑥ Not applicable

79. My primary educational background is (mark as many as apply) __________.
① Science-engineering-technical
② Social science or humanities
③ Business
④ Professional (law, health field, social service)
⑤ Other educational background

80. To what extent does this questionnaire accurately represent your leadership performance?
⓪ Not at all
① To some degree
② Fairly well
③ Extremely well
④ Exactly

Appendix P:
Letter: Invitation to Participate

University of Alberta
Edmonton
Canada T6G 2G5

Department of Educational Psychology
Faculty of Education
6-102 Education North, Telephone (403) 492-5245
Fax (403) 492-1318

June 8, 1992

Human Resource Services Division
Alberta Health
10025 - Jasper Avenue, Box 1360
EDMONTON, Alberta
T5J 2N3

Dear Research Participant:

RE: LEADERSHIP EFFECTIVENESS RESEARCH STUDY

You are invited to participate in a study on leadership. The purpose of this research is to determine how decision-making style is related to a leader's effectiveness.

This research will involve leaders and subordinates from various organizations. A leader in this study is defined as an individual who has responsibility directing and coordinating subordinates. In the first phase of the study, the leaders will respond to thirty typical decision problems to determine the decision-making process they would use. Then the leaders and their participating subordinates will complete a questionnaire (Multifactor Leadership Questionnaire) which assesses leadership effectiveness. Leader effectiveness will be measured in terms of: (i) individual/organizational effectiveness, (ii) follower satisfaction with leader, and (iii) amount of extra effort by subordinate (follower). All responses will be anonymous and confidential.

The ratings of the subordinates will be grouped to form a snapshot of your leader's leadership profile. It will be impossible to identify individuals with their responses.

To protect confidentially, all forms will be destroyed after responses have been tabulated. Only the research personnel working on the project will see the individual responses. Participation in the study is voluntary.

A Research Coordinator has been appointed by your organization to ensure that the research is carried out accordingly to the approved protocol. The Coordinator will collect the questionnaires on behalf of the researcher but will not see the responses.

P.T.O.

Thank you in advance for your participation in this important research study. Successful organizations are successful because of their leaders and employees. Your participation is greatly appreciated.

PROMPTNESS IS IMPORTANT. Please return your completed MLQ to the designated Coordinator.

If you have any questions or concerns about the research, please call the researcher, John Tanasichuk, at 403--435-6521.

Yours truly,

J. Tanasichuk

John A. Tanasichuk
B.Sc., B.Comm., MBA
Ph.D. Candidate

Appendix Q:

Instructions to Followers

INSTRUCTIONS TO SUBORDINATES/PEERS

INFORMED CONSENT #2

Please read the Informed Consent #2, authorize it and return it to the coordinator in the Brown Consent Envelope.

If you do not wish to participate, please return the blank questionnaire. If you change your mind about being involved in the study after completing the MLQ, draw an "X" across the front and your responses will not be included in the study. Return the sealed envelope as above.

MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ)

This is a questionnaire to provide a description of your leader. Answer all questions on the answer sheet with the No. 2 pencil provided. For each descriptive statement, please judge how frequently it fits the person you are describing.

This questionnaire is to be answered anonymously. Please check the front cover to ensure the leader's name matches the person you are describing. The front page will already be filled out. Please complete the information requested on the back page. Use the provided lead pencil and make dark, heavy marks that fill the oval.

Upon completing the MLQ Questionnaire, please enclose it in the White Rater Envelope. Seal it and return it to your Coordinator.

PLEASE RETURN THE PENCILS IN THE BROWN ENVELOPE.

Appendix R:

Informed Consent #2: Follower

INFORMED CONSENT #2

SUBORDINATE/PEER

Title of Research:	Conformity to the Vroom-Yetton Normative Model of Leadership and Leadership Effectiveness
Researcher:	John A. Tanasichuk PhD Candidate Educational Psychology University of Alberta Edmonton, Alberta Phone: 403--435-6521

Purpose of Study:

The purpose of this research is to determine how decision-making style is related to a leader's effectiveness.

Procedure:

If you agree to take part in the study, you will be asked to complete a Multifactor Leadership Questionnaire (MLQ). The MLQ provides a report of a leader's effectiveness and style based on self ratings and ratings by others. In this instance, you and your co-workers will be rating your leader. From a list of descriptive statements, you will determine how frequently it fits the person you are describing. These ratings will be grouped together to form a leadership profile which your leader will receive.

Risks:

This study does not pose any risk to you or your subordinates. Your participation is completely voluntary. If you decide not to take part, it will not affect your employment status in any way. Your responses are anonymous and confidential. It will be impossible to identify individuals by their responses. Results of the study may be published, used in later studies, or used for educational purposes but your name and the name of your organization will be kept confidential.

P.T.O.

A coordinator has been appointed by your organization to ensure that the study is carried out according to the approved plan. The coordinator will collect the questionnaires on behalf of the researcher, but will not see the responses. Only the research personnel will see the completed questionnaires. All questionnaires will be destroyed after they have been tabulated.

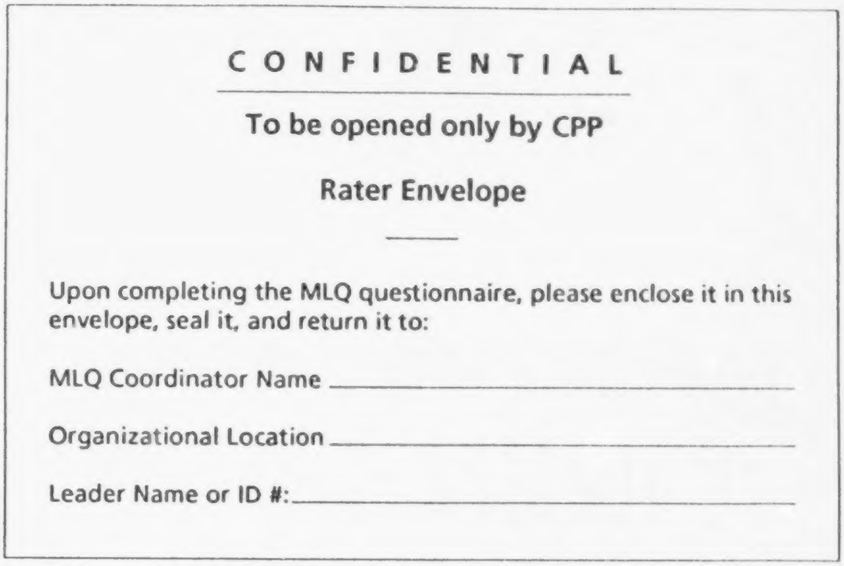
Signature of Follower/Subordinate/Peer

Date

PLEASE RETURN THE SIGNED CONSENT IN THE BROWN ENVELOPE. PLEASE RETURN THE COMPLETED MLQ RATER FORM IN THE WHITE RATER ENVELOPE.

Appendix S:

Rater Envelope



CONFIDENTIAL

To be opened only by CPP

Rater Envelope

Upon completing the MLQ questionnaire, please enclose it in this envelope, seal it, and return it to:

MLQ Coordinator Name ____________________

Organizational Location ____________________

Leader Name or ID #: ____________________

Appendix T:

Return Envelope: Follower

Alberta Health
Government of Alberta

Leadership Effectiveness

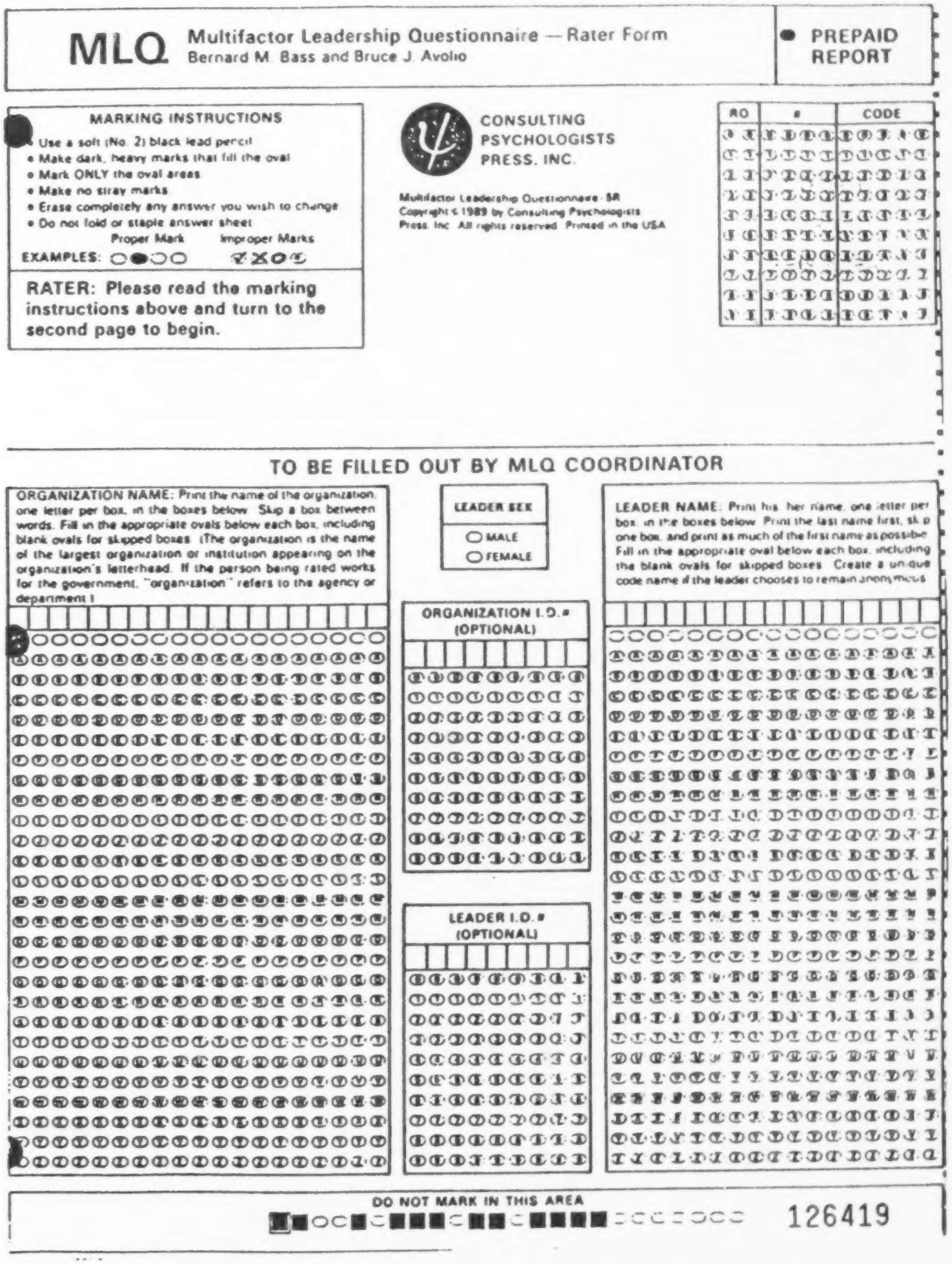
Research Study

RETURN TO:

Contents: Consent Form

Appendix U:

MLQ - Rater Form



MLQ Multifactor Leadership Questionnaire — Rater Form
Bernard M. Bass and Bruce J. Avolio

● PREPAID REPORT

MARKING INSTRUCTIONS

- Use a soft (No. 2) black lead pencil
- Make dark, heavy marks that fill the oval
- Mark ONLY the oval areas
- Make no stray marks
- Erase completely any answer you wish to change
- Do not fold or staple answer sheet

Proper Mark Improper Marks
EXAMPLES:

RATER: Please read the marking instructions above and turn to the second page to begin.

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Multifactor Leadership Questionnaire - 5R
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RO # CODE

TO BE FILLED OUT BY MLQ COORDINATOR

ORGANIZATION NAME: Print the name of the organization, one letter per box, in the boxes below. Skip a box between words. Fill in the appropriate ovals below each box, including blank ovals for skipped boxes. (The organization is the name of the largest organization or institution appearing on the organization's letterhead. If the person being rated works for the government, "organization" refers to the agency or department.)

LEADER SEX
○ MALE
○ FEMALE

ORGANIZATION I.D.#
(OPTIONAL)

LEADER I.D.#
(OPTIONAL)

LEADER NAME: Print his/her name, one letter per box, in the boxes below. Print the last name first, skip one box, and print as much of the first name as possible. Fill in the appropriate oval below each box, including the blank ovals for skipped boxes. Create a unique code name if the leader chooses to remain anonymous.

DO NOT MARK IN THIS AREA

126419

This is a questionnaire to provide a description of a leader. Answer all questions on the answer sheet with a No. 2 pencil. When the item is irrelevant or does not apply, or where you are uncertain or don't know, leave the answer blank. Make no more than one mark for each question. This questionnaire is to be answered *anonymously*.

Directions: Listed below are descriptive statements. For each statement, we would like you to judge how frequently it fits the person you are describing.

Example: *"The person I am rating is someone I can discuss my problems with."*

If this is true of the person you are describing most of the time or "frequently, if not always," then mark the number 4; "fairly often," mark number 3; "sometimes," mark number 2; "once in awhile," mark number 1; "not at all," mark 0.

Mark the statement below which applies best:

○ I report directly to the person I am rating.
○ I am a peer or co-worker of the person I am rating.
○ The person I am rating reports directly to me.
○ I am a client, customer, or constituent of the person I am rating.
○ Other ______________________________

Use this key for the five possible responses to items 71-74.

0	1	2	3	4
Not effective	Only slightly effective	Effective	Very effective	Extremely effective

⓪①②③④ 71 The overall effectiveness of the group made up of the leader and his or her supervisees, and/or co-workers can be classified as ________
⓪①②③④ 72 How effective is the leader in representing his or her group to higher authority?
⓪①②③④ 73 How effective is the leader in meeting the job-related needs of supervisees and/or co-workers?
⓪①②③④ 74 How effective is the leader in meeting the requirements of the organization?

75. In all, how satisfied are you with the leadership abilities of the person you are rating?

⓪ Very dissatisfied
① Somewhat dissatisfied
② Neither satisfied nor dissatisfied
③ Fairly satisfied
④ Very satisfied

76. In all, how satisfied are you with the methods of leadership used by the person you are rating to get your group's job done?

⓪ Very dissatisfied
① Somewhat dissatisfied
② Neither satisfied nor dissatisfied
③ Fairly satisfied
④ Very satisfied

77. My position is ________

① First-level (lowest level of supervision or equivalent)
② Second-level (supervises first-level)
③ Third-level
④ Fourth-level
⑤ Fifth-level or higher
⑥ Not applicable

78. Of the alternatives below, which is the highest level existing in your organization?

① First-level (lowest level of supervision or equivalent)
② Second-level (supervises first-level)
③ Third-level
④ Fourth level
⑤ Fifth-level or higher
⑥ Not applicable

79. My primary educational background is (mark as many as apply) ________

① Science-engineering-technical
② Social science or humanities
③ Business
④ Professional (law, health field, social service)
⑤ Other educational background

80. To what extent does this questionnaire accurately represent the leadership performance of the person you rated?

⓪ Not at all
① To some degree
② Fairly well
③ Extremely well
④ Exactly

Appendix V:

Leader Case Study: Response Sheet

Name:

Company:

YOUR SEX
- ● MALE
- ○ FEMALE

YOUR EDUCATION (Mark Highest Level)
- ○ Elementary
- ○ Some High School
- ○ High School Grad
- ○ Some College
- ○ 2 Yr College Grad
- ● 4 Yr College Grad
- ○ Some Grad Work
- ○ Graduate Degree

TYPE OF ORGANIZATION
- ○ Manufacturing
- ○ Military
- ○ Educational
- ○ Religious
- ○ Research and development
- ○ Correctional, law enforcement, security
- ○ Volunteer association
- ○ Health service
- ○ Social service
- ● Government
- ○ Other ______________

Level
- ☐ First Level Supervisor
- ☐ Manager of Supervisors
- ☐ Unit/Department Manager
- ■ General/Executive Manager
- ☐ Individual Contributor
- ☐ Other

Function
- ☐ Production/Operations
- ☐ Research/Engineering
- ☐ Sales/Marketing
- ☐ Staff
- ☐ Data Processing
- ■ General Management
- ☐ Other

YOUR AGE

	○
○	○
○	○
○	○
●	○
○	●
○	○
○	○
○	○
○	○

YOUR # OF YEARS FULL-TIME WORK EXPERIENCE		YOUR # OF YEARS IN MANAGEMENT OR SUPERVISORY POSITION		YOUR # OF YEARS WITH PRESENT ORGANIZATION		# OF PEOPLE WHO REPORT DIRECTLY TO YOU		APPROXIMATELY HOW MANY PEOPLE IN YOUR ORGANIZATION?						# OF WEEKS YOU SPENT IN LEADERSHIP TRAINING IN THE PAST 5 YEARS
○	○	○	○	○	○	●	○	●	○	●	○	●	●	○
○	○	●	○	●	○	○	○	○	○	○	○	○	○	○
●	○	○	○	○	○	○	○	○	○	○	●	○	○	○
○	○	○	○	○	●	○	○	○	○	○	○	○	○	●
○	●	○	○	○	○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
○	○	○	●	○	○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○ (or more)

YOUR CURRENT SALARY
- ○ $20,000 or less
- ○ $21-40,000
- ○ $41-60,000
- ○ $61-80,000
- ● $81-100,000
- ○ $101-120,000
- ○ $121-140,000
- ○ $141-160,000
- ○ $161-180,000
- ○ $181-200,000
- ○ More than $200,000

Circle the appropriate answer

1 A1 A2 C1 [✓ C2] G2 2 A1 A2 C1 C2
3 A1 A2 C1 C2 [✓ G2] 4 A1 A2 [✓ C1] C2
5 A1 A2 C1 [✓ C2] G2 6 A1 [✓ A2] C1 C2
7 A1 A2 [✓ C1] C2 G2 8 A1 A2 C1 [✓ C2]
9 A1 A2 C1 C2 [✓ G2] 10 [✓ A1] A2 C1 C2
11 A1 A2 C1 C2 [✓ G2] 12 A1 A2 C1 C2
13 A1 A2 [✓ C1] C2 G2 14 A1 A2 C1 C2
15 A1 [✓ A2] C1 C2 G2 16 A1 A2 [✓ C1] C2
17 A1 [✓ A2] C1 C2 G2 18 [✓ A1] A2 C1 C2
19 [✓ A1] A2 C1 C2 G2 20 A1 A2 C1 C2
21 A1 A2 C1 C2 [✓ G2] 22 A1 [✓ A2] C1 C2
23 A1 A2 [✓ C1] C2 G2 24 A1 A2 C1 [✓ C2]
25 A1 A2 C1 C2 [✓ G2] 26 A1 [✓ A2] C1 C2
27 [✓ A1] A2 C1 C2 G2 28 A1 A2 C1 [✓ C2]
29 A1 [✓ A2] C1 C2 G2 30 A1 A2 C1 C2

Total number of times chosen:

A1	A2	C1	C2
4	6	3	5

Appendix W:

Leader Case Study: Computer Feedback

```
USE OF LEADER BEHAVIORS

Based on your responses to the 30 cases:

                                               Session   Organization
                          ------------------   -------   ------------
                            Number     % of
                          of cases     cases

A1 Resolve Alone               4        13 %      14 %        17 %
A2 Question Individuals        6        20 %      11 %         8 %
C1 Consult Individuals         5        17 %      16 %        16 %
C2 Consult Group               5        17 %      25 %        27 %
G2 Resolve as Group           10        33 %      35 %        32 %


DEGREE OF PARTICIPATION

This printout shows overall leader participation based on the 30 cases.

      Your average participation:             5.65
      Session's average participation:        6.35
      Organization's average participation:   6.28

number of
participants
      ^!                                                              !
      7!                                                              !
      6!                                                              !
      5!                                                              !
      4!                                                              !
      3!                                                              !
      2!                                    *                         !
      1!                           * *    Y *** *   **   *  *         !
       +--------------------------------------OS----------------------+
        < Less Participative                      More Participative >

                            Degree of Participation
      Y = Your average
      S = Session's average
      O = Organization's average

Key insights gained:
```

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USE OF TIME

Your individual printout provides feedback on the extent to which you chose time efficient behaviors and how often you chose to invest time.

For each of the 30 cases, your choice of leader behavior is indicated as "time Efficient" (you selected the least participative of the recommended behaviors) or "time Investment" (if you selected one of the other recommended behaviors).

CASE	RECOMMENDED BEHAVIORS	YOUR ANSWER	TIME EFFICIENT	SOME TIME INVESTMENT	OUTSIDE OF RANGE
1		C2		INVESTMENT	
2		G2	only one acceptable behavior		
3		G2		INVESTMENT	
4		C1		INVESTMENT	
5		C2		INVESTMENT	
6		A2			X
7		C1		INVESTMENT	
8		C2			X
9		G2			X
10		A1	EFFICIENT		
11		G2		INVESTMENT	
12		G2	only one acceptable behavior		
13		C1		INVESTMENT	
14		G2			X
15		A2			X
16		C1		INVESTMENT	
17		A2		INVESTMENT	
18		A1			X
19		A1	EFFICIENT		
20		G2			X
21		G2	only one acceptable behavior		
22		A2		INVESTMENT	
23		C1		INVESTMENT	
24		C2	EFFICIENT		
25		G2			X
26		A2			X
27		A1	EFFICIENT		
28		C2			X
29		A2		INVESTMENT	
30		G2		INVESTMENT	

Key insights gained:

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```
GUIDELINE AGREEMENT

                                    Your %  Session %
Guideline                         Agreement Agreement     Cases to Review
-----------------------------------------------------------------------
Need           11 | ***********
Information    -- | -------------      92%      93%    18
               12 | ############

No              5 | *****
Structure      -- | -------------      83%      64%    18
                6 | ######

No Goal         8 | ********
Agreement      -- | -------------      67%      81%    9 14 20 25
               12 | ############

Commitment      7 | *******
needed for     -- | -------------      70%      89%    6 15 26
Participation  10 | ##########

Need to         2 | **
Address        -- | -------------      40%      77%    6 15 26
Conflict        5 | #####

Commitment,     0 |
No Superior    -- | -------------       0%      75%    8 26
Solution        2 | ##

Commitment      3 | ***
Priority       -- | -------------      75%      71%    28
                4 | ####

               Legend     *  A case where you agreed with the model
                          #  A case where the guideline applies

Key insights gained:



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When there is No Goal Agreement A1, A2, C1, C2

Superior Solution Y
Goal Agreement N

If you require a superior solution and lack goal agreement, do not let the group decide. Use A1 (Resolve Alone), A2 (Question Individuals), C1 (Consult Individuals) or C2 (Consult Group). The leader can not trust the group to develop a superior solution without goal agreement.

You followed this guideline in 8 of the 12

cases where it applies. In cases

9 14 20 25, you did not follow this guideline.

Overall, you seem to consider this guideline. How do you handle lack of goal agreement on the job?

If you can not get Commitment without Participation C1, C2, G2

Commitment Y
Commitment without
Participation N

If you require commitment to implement and others will not commit without active participation involve others. Use C1 (Consult Individuals), C2 (Consult Group) or G2 (Resolve as Group). Neither A1 nor A2 provid sufficient participation to build commitment.

You followed this guideline in 7 of the 10

cases where it applies. In cases

6 15 26, you did not follow this guideline.

Overall, you seem to consider this guideline. How do you respond when others are not likely to commit to a solution without active participation?

When you Need to Address Conflict C2, G2

Commitment Y
Commitment without
Participation N
Conflict about
Alternatives Y

If you require commitment to implement, others will not commit without active participatio and you anticipate conflict about alternatives, deal with conflict as a group. Use C2 (Consult Group) or G2 (Resolve as Group). The group member need to hear all viewpoints to resolve the conflic and build commitment to the solution.

You followed this guideline in 2 of the 5

cases where it applies. In cases

6 15 26, you did not follow this guideline.

Personal Profile for Effective Involvement

Your individual printout provides feedback on the extent to which you followed the guideline, which form the basis of the involvement process.

When you do Not have Enough Information — A2, C1, C2, G2

Superior Solution Y
Information N

If you require a superior solution and lack information, do not decide alone. Use A2 (Question Individuals), C1 (Consult Individuals), C2 (Consult Group) or G2 (Resolve as Group). Using A1 runs the risk of missing a superior solution due to incomplete or inaccurate informatio

You followed this guideline in 11 of the 12

cases where it applies. In case

18, you did not follow this guideline.

Overall, you seem to consider this guideline. How do you currently respond to lack of information on the job?

When there is No Structure — C2, G2

Superior Solution Y
Information N
Structure N

If you require a superior solution, lack information, and don't know what information is missing or where to get it, bring people together as a group.
Use C2 (Consult Group) or G2 (Resolve as Group). The leader needs the group's interaction to identify and find the missing information.

You followed this guideline in 5 of the 6

cases where it applies. In case

18, you did not follow this guideline.

Overall, you seem to consider this guideline. How do you handle lack of structure on the job?

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When there is no Superior Solution, and Commitment is Required G2

Superior Solution	N
Commitment	Y
Commitment without Participation	N

If there is no need for a superior solution, you need commitment to implement and can not get commitment without participation, use G2 (Resolve as Group). This will maximize the commitment to implementation.

You followed this guideline in 0 of the 2

cases where it applies. In cases

8 26, you did not follow this guideline.

Review the cases to determine why you differed. What are the implications on the job?

When Commitment is a Priority G2

Superior Solution	Y
Commitment	Y
Commitment without Participation	N
Goal Agreement	Y

If you require a superior solution, commitment of others is critical, you can not get commitment without participation, and there is goal agreement, use G2 (Resolve as Group). This will maximize commitment, and the group is likely to reach a solution compatible with organizational goals.

You followed this guideline in 3 of the 4

cases where it applies. In case

28, you did not follow this guideline.

Overall, you seen to consider this guideline. How do you respond on the job to situations in which the commitment of others is critical, they are not likely to commit without active participation, and there is goal agreement?

REVIEW THE FOLLOWING GUIDELINES AND CASES

Need to Address Conflict	6 15 26
Commitment with Equal Solution	8 26

Key insights gained:

Appendix X:

MLQ: Descriptors for High Scores on Outcomes for the Organization

MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ)

Organization Name:

Org I.D.#: 70 0 0

Scored: 06-25-92

DESCRIPTORS FOR HIGH SCORES ON OUTCOMES FOR THE ORGANIZATION

	Outcomes for the Organization
Amount of Extra Effort:	Individuals have a heightened motivation to succeed. They attempt to surpass their own and group's performance expectations.
Relations to Higher-Ups:	Individual's needs are better represented to higher-level leaders in the organization.
Unit Effectiveness:	The unit composed of the leader and the leader's group meets and in many cases surpasses its goals.
Job Effectiveness:	Leader meets individual's job-related needs and sufficiently improves their performance.
Organizational Effectiveness:	Leader contributes directly to the effectiveness of the work group, unit, and organization.
Satisfaction:	Individuals are content with the leader and the leader's methods and feel increased pride in individual contributions to group accomplishment. They feel their work-related needs are well represented and satisfactorily met.

Appendix Y:

MLQ: Organizational Norms for Organizational Outcomes

MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ)

Organization Name: Org I.D.#:

Scored: 03-13-9:

Table 1B
ORGANIZATIONAL NORMS FOR ORGANIZATIONAL OUTCOMES

<table>
<tr><th rowspan="2">Outcomes for the Organization</th><th rowspan="2"></th><th rowspan="2">Mean Score</th><th rowspan="2">S-R</th><th colspan="6">Percentage of Responses</th></tr>
<tr><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>NR</th></tr>
<tr><td rowspan="2">Amount of Extra Effort</td><td>0 1 2 3 4
|...|...|.S.|...|</td><td>Self 2.5</td><td rowspan="2">0.4</td><td>0%</td><td>4%</td><td>48%</td><td>41%</td><td>7%</td><td>0%</td></tr>
<tr><td>|...|...|R..|...|</td><td>Rater 2.1</td><td>8</td><td>11</td><td>40</td><td>27</td><td>8</td><td>5</td></tr>
<tr><td rowspan="2">Relations to Higher-Ups</td><td>|...|...|.S.|...|</td><td>Self 2.6</td><td rowspan="2">-0.0</td><td>0</td><td>0</td><td>44</td><td>56</td><td>0</td><td>0</td></tr>
<tr><td>|...|...|.R.|...|</td><td>Rater 2.6</td><td>2</td><td>11</td><td>28</td><td>38</td><td>16</td><td>5</td></tr>
<tr><td rowspan="2">Unit Effectiveness</td><td>|...|...|..S|...|</td><td>Self 2.8</td><td rowspan="2">0.1</td><td>0</td><td>0</td><td>44</td><td>33</td><td>22</td><td>0</td></tr>
<tr><td>|...|...|..R|...|</td><td>Rater 2.7</td><td>0</td><td>0</td><td>39</td><td>49</td><td>7</td><td>5</td></tr>
<tr><td rowspan="2">Job Effectiveness</td><td>|...|...|.S.|...|</td><td>Self 2.5</td><td rowspan="2">0.1</td><td>0</td><td>0</td><td>44</td><td>44</td><td>0</td><td>11</td></tr>
<tr><td>|...|...|.R.|...|</td><td>Rater 2.4</td><td>2</td><td>7</td><td>34</td><td>45</td><td>4</td><td>8</td></tr>
<tr><td rowspan="2">rganizational ffectiveness</td><td>|...|...|..S|...|</td><td>Self 2.6</td><td rowspan="2">-0.0</td><td>0</td><td>0</td><td>33</td><td>56</td><td>0</td><td>11</td></tr>
<tr><td>|...|...|..R|...|</td><td>Rater 2.6</td><td>2</td><td>0</td><td>36</td><td>44</td><td>11</td><td>8</td></tr>
<tr><td rowspan="2">Satisfaction</td><td>|...|...|..S|...|</td><td>Self 2.8</td><td rowspan="2">-0.0</td><td>0</td><td>11</td><td>11</td><td>67</td><td>11</td><td>0</td></tr>
<tr><td>|...|...|..R|...|</td><td>Rater 2.8</td><td>5</td><td>9</td><td>14</td><td>42</td><td>27</td><td>2</td></tr>
</table>

KEY: S = All Self-Ratings in the Organization (n=9)
R = All Raters in the Organization (n=39)

KEY:

Amount of Extra Effort	Relations to Higher-Ups and Effectiveness	Satisfaction
0 = Not at all	0 = Not effective	0 = Very dissatisfied
1 = Once in awhile	1 = Only slightly effective	1 = Somewhat dissatisfied
2 = Sometimes	2 = Effective	2 = Neither satisfied nor dissatisfied
3 = Fairly often	3 = Very effective	3 = Fairly satisfied
4 = Frequently, if not always	4 = Extremely effective	4 = Very satisfied
NR = No response	NR = No response	NR = No response

Appendix Z:

MLQ: Leader's Profile.

MULTIFACTOR LEADERSHIP QUESTIONNAIRE (MLQ)

Organization Name: Org I.D.#:

Leader Name: PORTER ID: Sex: MALE Scored: 03-13-92

Table 4B
LEADER'S ORGANIZATIONAL-OUTCOME PROFILE

Organizational Outcomes	0 1 2 3 4	Mean Score	S-R
Amount of Extra Effort *	|...|...|...|S..| O |...|..R|...|...|	Self 3.3 Rater 1.8	1.6
Relations to Higher-Ups **	|...|...S...|...| O |...|...|R..|...|	Self 2.0 Rater 2.2	-0.2
Unit Effectiveness *	|...|...S...|...| O |...|...|.R.|...|	Self 2.0 Rater 2.5	-0.5
Job Effectiveness *	|...|...|...S...| O |...|...|R..|...|	Self 3.0 Rater 2.2	0.8
`rganizational .ffectiveness ****	|...|...|...S...| O |...|...|...R...|	Self 3.0 Rater 3.0	0.0
Satisfaction **	|...|...|...S...| O |...|...|.R.|...|	Self 3.0 Rater 2.5	0.5

KEY: S = Self-Rating by this Leader
R = Raters of this Leader (n=4)
O = All Raters in the Organization (n=39)

KEY: Among all leaders (n=9), this Leader was ranked in the __nth Quartile:
**** = 4th (Highest) *** = 3rd ** = 2nd * = 1st (Lowest)

	Amount of Extra Effort	Relations to Higher-Ups and Effectiveness	Satisfaction
KEY:	0 = Not at all	0 = Not effective	0 = Very dissatisfied
	1 = Once in awhile	1 = Only slightly effective	1 = Somewhat dissatisfied
	2 = Sometimes	2 = Effective	2 = Neither satisfied nor dissatisfied
	3 = Fairly often	3 = Very effective	3 = Fairly satisfied
	4 = Frequently, if not always	4 = Extremely effective	4 = Very satisfied
	NR = No response	NR = No response	NR = No response

Table 5H
LEADER'S PROFILE FOR AMOUNT OF EXTRA EFFORT ITEMS

Amount of Extra Effort # Items	—Mean Response— 0 1 2 3 4	Number of Responses 0	1	2	3	4	NR
– I get them to do more than they expected they could do.	|...|...|...|...S |-------O--------| |...|...R...|...|	- 0	- 1	- 2	- 1	1 0	- 0
– I motivate them to do more than they thought they could do.	|...|...|...S...| |-------O--------| |...|..R|...|...|	- 0	- 1	- 2	1 0	- 0	- 1
– I heighten their motivation to succeed.	|...|...|...S...| |--------O-------| |...|..R|...|...|	- 0	- 1	- 3	1 0	- 0	- 0

KEY: S = Self-Rating by this Leader
R = Raters of this Leader (n=4)
O = All Raters in the Organization (n=39)

KEY: 0 = Not at all
1 = Once in awhile
2 = Sometimes
3 = Fairly often
4 = Frequently, if not always
NR = No response

Table 5I
LEADER'S PROFILE FOR EFFECTIVENESS ITEMS

Effectiveness # Items	—Mean Response— 0 1 2 3 4	Number of Responses 0	1	2	3	4	NR
– How effective are you in representing your group to higher authority?	|...|...S...|...| |--------O-------| |...|...|R..|...|	- 0	- 1	1 1	- 2	- 0	- 0
– The overall effectiveness of the group made up of yourself, your supervisees and your co-workers.	|...|...S...|...| |----------O-----| |...|...|.R.|...|	- 0	- 0	1 2	- 2	- 0	- 0
– How effective are you in meeting the job-related needs of supervisees and/or co-workers?	|...|...|...S...| |--------O-------| |...|...|R..|...|	- 0	- 1	- 1	1 2	- 0	- 0
– How effective are you in meeting the requirements of the organization?	|...|...|...S...| |----------O|-----| |...|...|...R...|	- 0	- 0	- 0	1 4	- 0	- 0

(EY: S = Self-Rating by this Leader
R = Raters of this Leader (n=4)
O = All Raters in the Organization (n=39)

KEY: 0 = Not effective
1 = Only slightly effective
2 = Effective
3 = Very effective
4 = Extremely effective
NR = No response

Table 5J
LEADER'S PROFILE FOR SATISFACTION ITEMS

#	Satisfaction Items	Mean Response 0 1 2 3 4	Number of Responses					
			0	1	2	3	4	NR
–	In all, how satisfied do you think your supervisees and/or co-workers are with you as a leader?	|...|...|...S...| ————O|——— |...|...|.R.|...|	- 0	- 1	- 1	1 1	- 1	- 0
–	In all, how satisfied are you with the methods of leadership you use to get your group's job done?	|...|...|...S...| ————O|——— |...|...|.R.|...|	- 0	- 1	- 1	1 1	- 1	- 0

KEY: S = Self-Rating by this Leader
R = Raters of this Leader (n=4)
O = All Raters in the Organization (n=39)

KEY: 0 = Very dissatisfied
1 = Somewhat dissatisfied
2 = Neither satisfied nor dissatisfied
3 = Fairly satisfied
4 = Very satisfied
NR = No response

Appendix AA:

Ethics Review

Department of Educational Psychology Ethics Review

Description of Project and Procedures for Observing Ethical Guidelines

PLEASE PROVIDE 2 COPIES OF THIS DOCUMENT TO THE CHAIR, RESEARCH COMMITTEE, DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

Project Title: Conformity to the Vroom-Yetton normative model of leadership and leadership effectiveness

Project Deadlines:

Date by which project approval is desired: Sept 15, 1991

Starting Date: Sept 15, 1991 Ending Date: April / May 1992

Applicant(s):

Principal Investigator: John Tanasichuk

University Status: Ph.D. Candidate

University Address: 6 - 145 F Education North

University Telephone: 3226

If the principal investigator is a student, please provide the following information:

If the research project is for a thesis or dissertation, has the applicant's Supervisory Committee approved the project? Yes: X No: ____

Name of Academic Advisor (or instructor if a course project)

DR. L.L. STEWIN

University Address: 5 - Education North

University Telephone: 1144

Signature of Principal Investigator. In case of a graduate student, signature of faculty advisor.

John Tanasichuk
Signature of Graduate Student(If applicable)

Sept 2, 1991
Date

Department of Educational Psychology
Ethics Review Form

Applicant's name John Tanasichuk

Short title Conformity to the Vroom-Yetton normative model of leadership and leadership effectiveness

Date distributed Sept. 5/91 Date returned Sept 10/91

Assessment (check each item)

	Yes	No	N/A
1. Does the researcher provide a clear statement of what is to be done?	✓		
2. Has provision been made for explaining the nature, length and purpose of the research to subjects and/or guardians and for assuring them that deception will not be used?	✓		
3. Are the data collection procedures clearly specified? (Have copies of instruments or samples of items to be used, including tests, interview guides, observational schedules been provided? In the the case of well-instruments, the name only needs to be provided.)	✓		
4. Has the matter of informed, normally written, consent of participants been attended to?	✓		
5. Has the right to opt out at any time without penalty been provided?	✓		
6. If underage or other "captive" participants are used, has their right to opt out or that of their guardians been attended to?	✓		
7. Are the procedures for providing anonymity and confidentiality acceptable?	✓		
8. Is it clear that the study will not be threatening or harmful to the participants or others?	✓		

Reviewer's recommendation:

✓ Approve.

_____ Acceptable if researcher satisfies the following conditions: _____

_____ Meeting of Ethics Committee required.

Fred Boersma
(Reviewer's Signature)

(Date)

Rogers
(Signature, Chair, Research Committee)

Sept 10/91
(Date)